Practical Sea-Fishing: A Handbook for Sea Anglers

P L. Haslope

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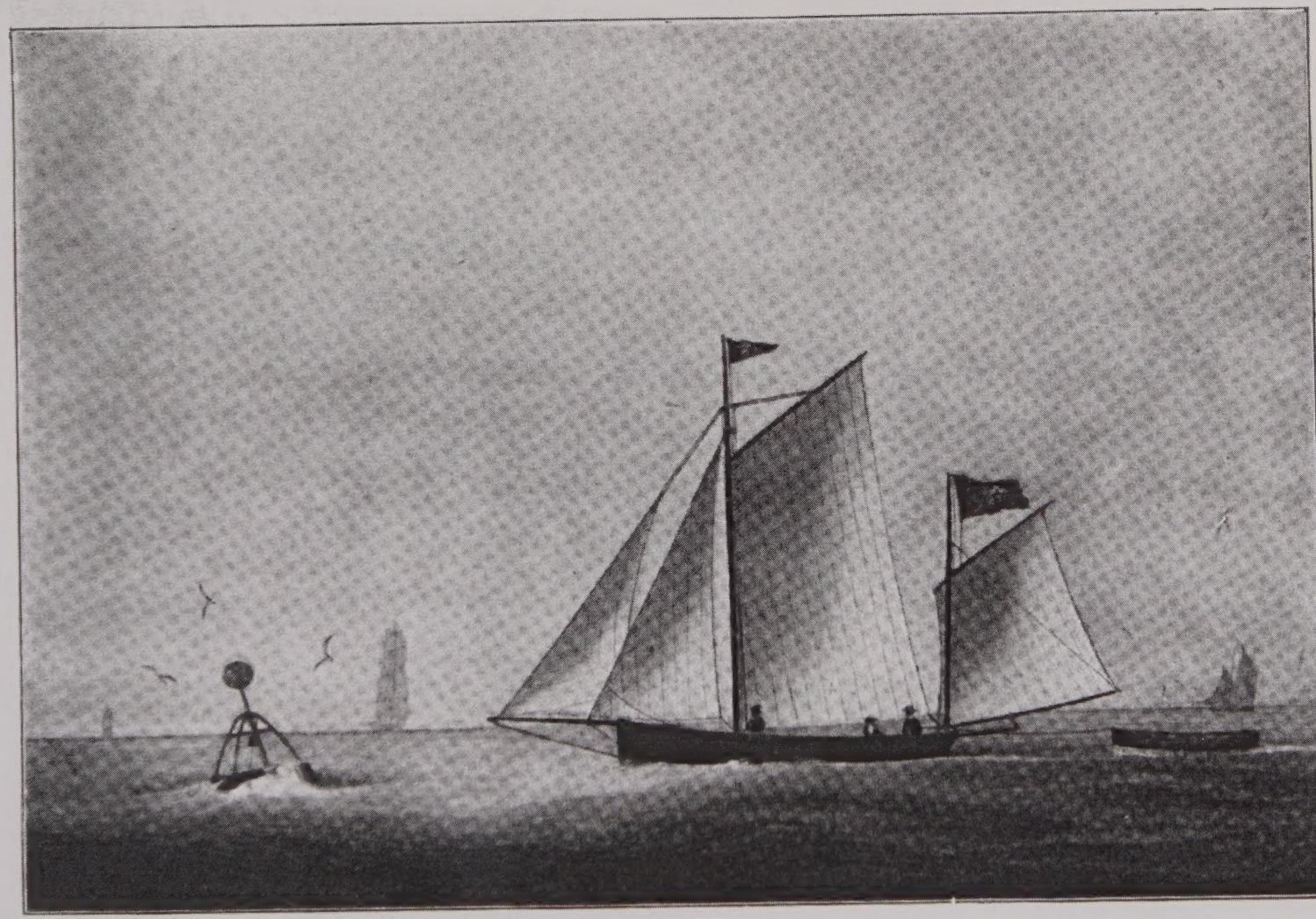
PRACTICAL SEA-FISHING:

A HANDBOOK FOR

SEA ANGLERS.



Handy Yawl-Rigged Boat designed by the Author's Father, and built expressly for Sea-Fishing.

(Reproduced from a Painting.)

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Practical Sea-Fishing:

A HANDBOOK

FOR

SEA ANGLERS.

By P. L. HASLOPE.

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Illustrations by the Author.

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PREFACE.

FROM boyhood I have been an enthusiastic Sea-fisherman, and have had the good fortune to capture all kinds of fish, both at home and abroad. A life-long residence by the sea has afforded me peculiar advantages in studying the habits of its occupants, and from experience and close intercourse with professional fishermen a thorough knowledge of the best methods of taking sea-fish has been acquired.

In writing the present little volume my object has been to impart to readers less fortunate than myself all the information which has been collected, trusting that it may result in their enjoying better sport, and taking more interest in this delightful pastime.

As the title indicates, the aim and purpose of this work is to be practical, and although opinions may differ (as they generally do amongst fishermen) concerning the methods of fishing, I have not described anything without having tested it thoroughly. If I have succeeded by my humble efforts in producing a handbook which can always be referred to with pleasure and profit by all concerned, my labour will more than meet with its reward.

Knowing from experience how ignorant some people are respecting Sea-fishing, it has been my endeavour not to omit the smallest details, so that even the tyro may have no difficulty in understanding the descriptions. One important reason why some amateurs often fail in securing good catches is that they quickly become discouraged. My advice to all Sea-fishers is to have patience and persevere, and, guided by the directions given in the following pages, some success is certain to be the result.

P. L. HASLOPE.

Torquay, 1905.

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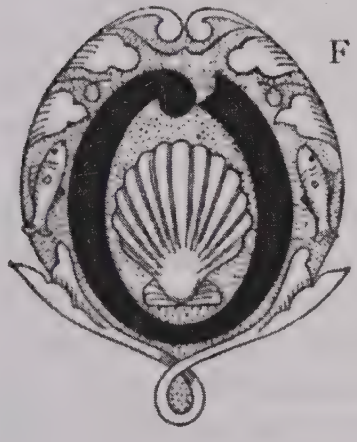
PRACTICAL SEA-FISHING.

Chapter I.

INTRODUCTORY.



OF all sports there is none that should appeal so strongly to the average Briton as sea-fishing. Other pastimes, such as hunting, horse-racing, or motoring, may fairly claim to be more dangerous and exciting, but a day on the sea with pleasant companions and in a good locality for sport affords more lasting enjoyment than any. One of the greatest charms of sea-fishing lies in its glorious uncertainty, for when the line has been baited and cast in it is often impossible to foretell what you may bring up. This pleasurable anticipation is always present, and although it may not always be fulfilled, yet the angler may reasonably hope that he will be successful. Blank days will occur to the best of fishermen, even when the conditions appear to be most favourable; but in the sea it is rare for the amateur to return without some reward for his efforts. The assertion that our recreation is monotonous is hardly well-founded, for the sea is

ever-changing; every day a fresh scene is presented to the view, and what better opportunity is there of studying its various moods?

As a matter of course sea-fishing has been practised from the earliest ages. Everyone is doubtless familiar with the miraculous draught of fishes, as recorded in the New Testament; and, as an instance of the use of lines, there is Our Lord's injunction to St. Peter, "Go thou to the sea, and cast an hook and take up the fish that first cometh up." We have, therefore, the highest possible authority on our side that sea-fishing generally is a useful and an interesting occupation to follow.

Amongst primitive methods of taking sea-fish may be mentioned that of spearing them in shallow water, or attracting them to the surface by means of a bright light fixed in the boat and then shooting them with a bow and arrow. The natives of certain islands also employ lines made by twisting together dried grass, the tough fibres of plants, or the hair of animals, and their hooks often consist of nothing but a sharp fish-bone. Although we have long since passed this stage, most of the material still employed in the manufacture of lines, such as flax, hemp, or cotton, owes its origin to plants.

There are several nations which may be said to compete closely with us in the art of sea-fishing, and much might be learnt from the methods they adopt. The French are most patient anglers, and to everyone who visits the Riviera the long bamboo rods, projecting from piers or landing-stages, are familiar objects; whilst the Italians are extremely clever in manufacturing nets and gear, the fineness of which is remarkable.

Owing to the restrictions placed upon fresh-water angling, many of its followers are now turning their attention to the sea, and find that here there is abundant room for their skill.

Unlike rivers and lakes, now so jealously guarded, the sea is free to everybody, and the amateur can cast his line where he pleases without any fear of being ordered off. The British Sea Anglers' Society, whose headquarters are in London, has done much to encourage sport, and this valuable institution now numbers some hundreds of members, with every prospect of their increasing.

Every year people from inland towns flock in thousands to seaside places to spend their summer holidays, yet of all these pleasure-seekers there are comparatively few who know much about sea-fishing, being often ignorant of the names of the commonest fish. It is hoped that this little work may help to enlighten such, and lead them to adopt a healthful recreation, and one that will be found more beneficial than many commonly sought after at fashionable resorts.

To those who are clever with their fingers there is no more interesting occupation than making sea-fishing gear of different kinds, and I trust that the practical details hereafter supplied, all of which are the result of personal experience, will be useful to readers wishing to try their hand at it. Some of the information may also be welcomed by professional tackle-makers, and if carefully followed up, would doubtless be the means of increasing their list of customers. As a rule, lines to be procured at the average seaside shop are rather rough affairs, being often improperly fitted up; and this is hardly to be wondered at, considering that those entrusted with the work have rarely undergone the necessary practical training. With the aid of the following instructions, however, the amateur will be enabled to prepare and to rig up his lines in an efficient manner, thus rendering himself almost independent of shops, except for his principal materials. Many a wet day might be enjoyably spent in such a manner which would otherwise be passed much less profitably; and at a small seaside village, where occupation of

any kind is difficult to obtain, it is a pleasant pastime in bad weather.

All lines and gear for sea-fishing should be as simple as possible, and I cannot too strongly urge this upon my readers. Of course, fine lines are most important, but simplicity in rigging them up should be the first consideration, as any complicated machinery is not needed, and only tends to frighten the fish. It must be said, however, that most sea-fish are much more easily caught than their fresh-water relatives and, when hungry, they do not appear to notice coarse lines, being only intent upon the bait which is attached to them. Those who have been accustomed to fresh-water fishing are often tempted to use lines too fine for the fish they are expecting, the consequence being that many of the largest specimens break away. There is nothing more detrimental to sport than hooking a fish and then allowing it to escape. On many occasions this fact may be remarked, and though accidents are always liable to happen, it is well to be provided with strong enough lines to land any fish that may take the bait.

In order thoroughly to enjoy sea-fishing, I would advise the amateur to seek some primitive village on the Cornish or Irish coast, and the further it is removed from civilisation, the better. If he can secure decent lodgings in a cottage it will be to his advantage, as here his wants will be well looked after by worthy fisher-folk, who will take pains to make him comfortable. At such a place he may wear the oldest of clothes, and if his landlord happen to be a "crabber" or a fisherman, he will be only too pleased, for a small remuneration, to take him out all day long. The amateur may have to put up with humble fare, but, at any rate, there will be plenty of the choicest fish to grace the table, and to anyone who has resided much in a large town this, in itself, will be an unusual luxury. If sport amongst the whiting, pollack,

bream, or other fish should happen to be slack, the boatman is sure to enliven him with yarns about huge congers or incidents of the smuggling days that will keep the angler amused until the fish come along again. Should the weather be too rough to venture out, there is plenty of amusement of a milder kind on shore. Probably there is some well-known rock in the vicinity where he may angle for bass, or a sandy beach from which the line may be thrown and splendid specimens of this sporting fish brought to land. At nearly every place a pier or a breakwater is to be found, and here he can happily pass an hour or two, quite safe from the qualms of the sea, and angle for pollack, wrasse, mullet, and various other fish. Or, failing everything else, he may set a long-line on the beach at low-water for bass, codling, and flat-fish, amusing himself by shrimping or prawning until it is time to haul it up again. What with crab and lobster-catching, setting nets and spillers, and other delightful amusements the visitor, weary of town life, will find his time fully and enjoyably occupied, and after a few weeks' holiday spent in such a manner will return home feeling a different man. No better cure for the anxieties produced by the hurry-skurry, luxurious age in which we live can well be imagined, and to most people such a form of recreation will do more good than all the medicine ever prescribed. Those who seek health should therefore adopt sea-fishing as a pastime, when they will soon forget all their ailments.

Of course, opinions differ, and many might prefer staying at a fashionable place where better accommodation may be obtained. The charges for boats and men, however, at such places are usually high, and the sport is indifferent compared with that to be had at a more secluded resort. Unfortunately, these delightfully primitive places are becoming scarcer every year, and it is now necessary to wander far from the beaten track to discover them.

The sea-fisherman who wishes to be independent should avoid if possible staying at an hotel, as the fixed times for meals are a great annoyance, and may considerably interfere with sport. It often happens that he may want to stay out late in the evening to fish a certain ground, and to be obliged to return in time for table d'hôte dinner is a serious drawback. If expense be considered there can be no question which is the more economical method, though many may still prefer the hotel as being more comfortable.

Having given a brief outline of the advantages of sea-fishing, I will now endeavour to supply what my readers are probably seeking—sound, practical information on all branches of this delightful pastime.

Chapter II.

LINES AND GEAR.

THE first question which the sea-fisherman will have to consider is the employment of suitable lines for the method of fishing he wishes to undertake. The principal and the most reliable materials used in the manufacture of hand-lines are hemp, cotton, and flax. On account of its greater strength, hemp is more generally used than cotton; but some prefer the latter, which, when hard laid, does not absorb the water so readily. Flax possesses great strength, and this qualification, combined with its pliability, renders it specially suitable for fine snooding.

The usual length into which lines are spun is 30 fathoms, but they can be obtained of different dimensions. If found to be too long, it is quite easy to cut a line in half, but the ends should always be whipped with a turn or two of waxed thread to prevent unlaying. It may here be mentioned that a fathom is equivalent to 6ft., and the former term is always employed in speaking of the length of lines or nets. Instead of measuring in the ordinary way, a fathom may be calculated by the full stretch of both arms, a rough-and-ready method commonly adopted by the professional fisherman.

Half a fathom, or one yard, is easily measured by holding the line to the nose with one hand, and extending the other arm backwards as far as possible. In the manufacture of lines Russian hemp is commonly used, but the Italian variety, being whiter and of superior quality, is to be preferred. As a general rule, hemp lines are to be recommended for all kinds of sea-fishing, and the amateur cannot go far wrong if he employs them. Moreover, they are cheap, and if due care is taken, are not greatly affected by the action of salt water, so detrimental to some materials.

The size of lines is determined by the weight of each, or a dozen of the same dimensions, a fact that should be remembered in ordering. Without describing minutely the manufacture of lines, it is sufficient to mention that they are usually composed of three strands, "laid," or spun up in the same manner as a rope. Cable-laid lines are sometimes used; these have the advantage of being harder, and of not bringing so much water inboard. Plaited lines are also occasionally used, but these are generally serviceable in connection with the rod. As a general guide, the following sizes will be suitable for different styles of fishing, according to the exact weight of each 30 fathom line:

For long-lines, spillers, and extra heavy work, 3lb. or 4lb.; conger, cod, ling, and all fish requiring the stoutest gear, 1¾lb. or 2lb.; ordinary deep-sea ground-fishing, 1lb. to 1½lb.; whiffing, plummeting, and in-shore fishing, ½lb.; whilst for chadding, dabs, and all small fish, where light leads can be used, a 4oz. to 6oz. line will answer the purpose.

Coarse lines are pleasanter to handle, especially when a heavy lead is attached; but they should not be thicker than the special occasion demands. A reliable firm which manufactures lines of every description is Messrs. Herbert E. Hounsell, Ltd., Pelican Works, Bridport, and samples of each thickness can be obtained from them. This place is one

of the chief centres for the manufacture of twine, lines, and nets, and the industry has here been carried on for many years. The above firm will supply bark-tanned or steam-tarred lines at slightly enhanced prices, and will also provide them ready fitted-up for the convenience of customers.

Stretching Lines.

Before using a line it should be stretched, as this renders it pliable and less liable to become entangled. The best place for this operation is in a field or a straight lane, where the line can be unwound to its full extent, and a fine day should be chosen. Securely fasten one end to a gate or other object not too high up, and, walking backwards, uncoil the line carefully, holding it upon the hands like a skein of wool. Leaving the line extended upon the ground, now proceed to the point of attachment, and grasp it firmly with a stout piece of shoe-leather to avoid cutting the hands. Keep a firm hold upon the line with both hands, and walk slowly along the entire distance, removing, as you proceed, any turns or "kinks" as they may occur. Having done so, take hold of the loose end, and pull fairly hard upon the line so as to stretch it. Repeat the above process several times until no more "kinks" remain, when the line may be wound upon the reel, and you can conveniently fish with it. Professionals attach a bottle to the end of their line, and tow it overboard for a while in order to attain the same object.

Barking or Tanning Lines.

This process tends to preserve the material, but it may be dispensed with if thought desirable. Coil up the line neatly, and attach it in two or three places with twine. Now prepare a mixture consisting of ½lb. of catechu to 3 pints of water, and when thoroughly

dissolved, pour the boiling liquid upon the line, having placed the latter in a tub or bucket for the purpose. Leave the line immersed in the solution for twenty-four hours, then hang it in the open air to dry. Catechu is a brown substance, used as a dye, and is extracted from the fibres or wood of a certain tree. It is imported from Malabar and other places in a compressed or solid form, being broken or pounded up for use. Before its introduction, oak-bark was used for the same purpose, and even now some of it is often added to the catechu, though this is not necessary. As hemp lines are so cheap, I am disposed to think it is better to leave them in their natural state, when they seem to be less visible in the water. Catechu (or "cutch" as it is called) can be obtained from fishermen who import by the hundredweight for their own purposes. Tincture of catechu is frequently used in the case of throat affections, but a chemist would charge a much higher price for this article.

Reels or Winders.

Having obtained a line and stretched it as above described, the next thing is to provide it with a serviceable reel, frame, or winder. The best woods for the purpose are beech, ash, or mahogany, and the material chosen should be well seasoned to prevent warping. Each reel is composed of four pieces, the cross-bars being turned in a lathe, and fitted accurately into the sides. Holes for this purpose must be drilled in the side-pieces, about 1in. to 1½in. from each end, to receive the bars. The ends of the bars must be reduced in the lathe so that they will fit rather tightly into the holes, leaving about ½in. or so projecting from each side. Before boring the holes, the edges of the side-pieces should be chamfered, and the corners rounded off neatly. By clamping two of the pieces

together, the holes may be drilled in the lathe at the same time, whereby greater accuracy is obtained. It is most important that the holes should be bored exactly in the centre of the side-pieces, and parallel with one another. When fitted together, a brass pin should be driven through each corner, having previously drilled a small hole for the purpose. The head of the pin is afterwards cut off, and the brass filed level with the wood. Fig. 1 shows the appearance of the completed reel ready for receiving the line. Having finished off the reel with sand-paper, it should be

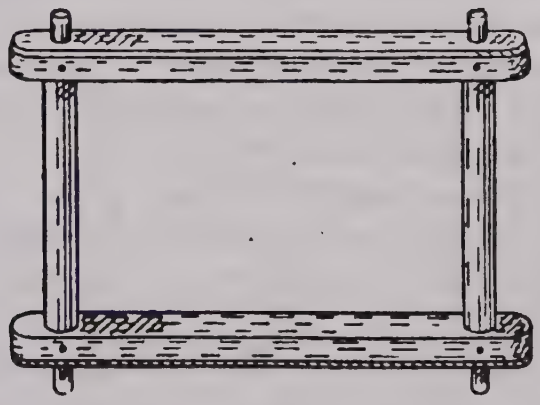


Fig. 1. Wooden Reel or Frame for carrying Hand-line.

given two coats of yacht-spar varnish, allowing the first coat to dry before the second is applied. This varnish is most useful, having a velvety and hard finish, and may be procured from Messrs. Nobles and Hoare, Cornwall Road, Stamford Street, London.

The following dimensions for reels will probably be useful to my readers:

Ground-lines: Sides, 12in. long, 1½in. wide, and ⅝in. thick; bars, 10in. long by ⅞in. Whiffing-lines: Sides, 10in. long, 1⅛in. wide, and ½in. thick; bars, 7½in. long by ¾in. The pieces can be obtained from a joiner or the nearest saw-mills, and a little margin must be allowed for planing and

finishing off. Of course, the sizes of reels will vary according to the line, but for convenience they should not be larger than absolutely necessary. Local fishermen often employ reels as large as a good-sized picture frame, and in Cornwall these are known as "caters." The advantage of having a large reel is that the line dries more quickly, and is therefore not so liable to becoming rotten. Sometimes, a piece of cork is attached to the outside corner of the reel for receiving the hooks. The line should be fastened securely to one of the bars, and then wound upon them evenly, the coils lying side by side. When the bars are full, the remainder must be wrapped upon the side-pieces. After a day's fishing, a wet line should be always unwound from the reel, and allowed to dry. The reel should never be hung upon a nail, which is very liable to rust the line.

Fig. 2 depicts a handy little reel, which can be easily carried in the pocket, and is useful for holding a fine line for in-shore fishing. Any hard wood, such as box or maple, could be used for it. The side-pieces should measure 6in. long, $\frac{3}{4}$in. wide, and $\frac{1}{2}$in. thick; and the cross-bars, $3\frac{1}{2}$in. long, $\frac{1}{2}$in. wide, and $\frac{1}{4}$in. thick. This reel is constructed like the larger ones, except that the bars, being flat, have to be mortised into the frame. The mortises must be carefully cut out with a chisel, the openings being made 1in. from each end of the side-pieces, measuring from the centre of the hole. The edges of all the pieces should be chamfered and nicely smoothed with fine sand-paper. Accuracy of construction is important in these reels, and if the amateur feels he is not capable of making them, the work should be entrusted to a reliable joiner.

Snooding.

This term is applied to the finer stuff attached to the main line, and is composed of hemp, cotton, or flax.

It is sold by weight, and varies in size from 120z. to 40z. per dozen 20yds. hanks. Flax snooding is the best for most kinds of sea-fishing on account of its strength, but hemp is largely used. When cut into lengths for fastening to a line the pieces are called "snoods." Two or three different sizes should be kept, and to prevent entanglement they should be wound upon small reels (see Fig. 2), each size being on a separate winder. A piece of flat wood, about 4in. by 2½in., with a groove at each end is also useful and easily made. I much prefer bright snooding to that which has been tanned, believing that the latter is more visible to the fish. When

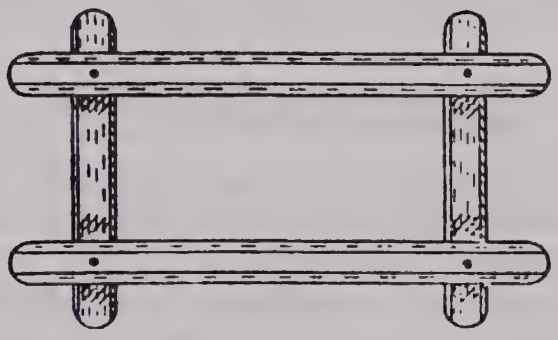


Fig. 2. Smaller Reel for holding Snooding or finer Line.

sold retail, hemp snooding is very cheap, and only costs about 2d. per hank, yet it is reliable for any class of fishing.

Gut, and How to Knot It.

Although fine snooding is often used at the end of the line without any gut, in many kinds of fishing the latter is greatly conducive to success. Owing to the strands of gut being short, it is necessary to knot them together to produce a cast or collar of a certain length. Of course, the amateur may procure casts ready-made, but it is much better if he can learn to knot his own, as more reliance can be placed upon them. First-class gut

is white and shiny in appearance, and when not required, the hank should be wrapped up in washleather, and kept in a dark place. The yellow stuff sometimes exhibited in shop-windows should never be utilised, as this has lost part of its strength through exposure to the light. Gut should be unstained for sea-fishing, and can be purchased by the hank at any tackle-shop, or from Mr. R. Ramsbottom, 81, Market Street, Manchester, who will send his annual price list, with full particulars, and showing the different sizes, upon application. The most useful quality for our purpose is "Marana," or light salmon gut, which can be procured as low as 2s. 6d. per hank. Usually, 14in. gut will be quite long enough for knotting into collars, but of course the

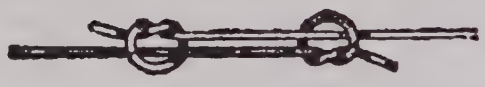


Fig. 3. The Single Fisherman's Knot for making Gut Collar, formed by two single knots afterwards tightened and drawn together.

longer it is the fewer knots there will be. The selection of gut will much depend upon the purchaser's pocket, but for sea-fishing it need not be expensive. All strands used for knotting should appear round to the eye, and any flat ones should be rejected in making-up a collar. Twisted traces are largely sold, but they are not so strong as those in which the strands lie side by side. Some are plaited or spliced together instead of knots; these have a nice appearance, and are fairly satisfactory on the whole.

Before knotting gut, select as many strands as are wanted, and having cut off the waste ends, soak them in lukewarm water for about a quarter-of-an-hour. Usually, one end of the strand will be found thicker than the other, and alternate ones should, therefore, be reversed. Take two of the strands, and hold them parallel to one another, the ends

pointing in opposite directions. With the end pointing towards the right, make a single turn over the adjacent strand, and bring it up through the loop. Reverse the strands, and do the same with the other ends, then tighten the knots, and draw them together. Cut off the ends, leaving a little margin, and the join is completed. This is the Single Fisherman's or English Knot, and Fig. 3 shows the fastening with the turns loose. Before sliding the two knots

Fig. 4. The Double Fisherman's Knot for Gut Collar, formed by passing the end twice through the loop in each case before closing the knots.

together, it is often customary to whip the intervening part with silk, or, better still, with a piece of waste gut, to act as a buffer. Although this tends to relieve the strain, it is hardly necessary to go to this trouble. The Double Fisherman's Knot (see Fig. 4) is an excellent fastening, and can be used with the utmost confidence. It is here represented

Fig. 5. The Single Overhand Knot with two parts for Gut Collar, made by tying a single knot over both strands.

with the turns quite loose, and is formed like the last knot, excepting that each end is passed twice over the opposite strand, and through the loop thus formed. Tighten one knot before reversing the strands to make the other; then draw them together. Care must be taken that the turns lie evenly, and this can be effected by pushing them along with the forefinger and thumb of the left hand before tightening each

knot. After cutting off the ends, the knot may be improved by rolling it with a piece of flat wood.

Fig. 5 shows another excellent fastening which is preferred by some fishermen, though it involves a little more waste of gut. Hold the strands parallel to one another as before, and tie a single overhand knot with the two parts, taking care, however, that the coils lie evenly as here represented. Instead of passing the ends once, they may be brought twice over, and put through the loop thus formed. This is a very strong fastening, and perfectly reliable.

After knotting together the separate strands, an eye or loop will be required at one or both ends, and Fig. 6 shows the best method. Make a single overhand knot at a little distance from the end of the collar. Pass the end through the bight, and tie another single knot upon the main part. Tighten the two knots and draw them together. The loop should always be made of a good size, so that, if necessary, it can be passed comfortably over the bait.

Fig. 6. Gut Loop for end of Collar, showing the two single knots loose before tightening them and drawing them together.

Single gut collars, as above described, are easy enough to make, but double or treble ones are rather more difficult. If the strands are not tied evenly, one may be subjected to more strain than another, causing it to break, and thereby weakening the collar. To obviate this, the following plan should be adopted: Commence by making a loop with the strands, and having done so, tie one-half of a Fisherman's Knot upon them with the next set of strands, as shown at B (Fig. 7). Having tightened the knot, take hold of the parts A, and draw the knot B a little way down, leaving room, of course, for tying the second half of the knot. This will make the first strands quite level, and by care in tying the

second knot, the strain upon them will be equalised when the fastening is completed. All the lengths must be connected in this manner, and after a little practice a reliable collar should be the result. In making the second loop, cut the ends perfectly level before forming the knots. When finished, hang one loop upon a hook and stretch the collar, afterwards rolling the knots on a table with a piece of flat wood. This helps to straighten any strands which may be uneven, and the strength of the collar can thereby be tested. The length generally required will be 1yd. to 1½yds., and the strength will depend upon circumstances. A stout single

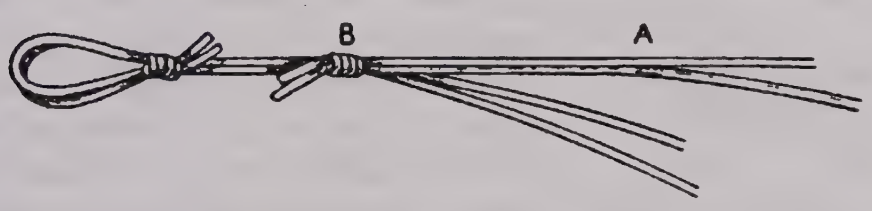


Fig. 7. Method of Levelling Gut Strands accomplished by grasping the part A, which causes the knot B to slide and so equalise the strain.

collar will bear a dead strain of 16lb., a double one 20lb., and a treble one 27lb., depending, of course, upon the quality of the gut. To test a collar properly, however, it should be soaked for half an hour in cold water beforehand.

If desired, two or three single traces can be knotted separately, the loops hung upon the hooks of a spinning-jack, and lightly twisted together. This plan makes a stronger collar, but the several knots will not coincide in every case, though it avoids the above difficulty of levelling the strands.

Hooks.

No part of the sea-fisherman's outfit is so important as that of hooks, and great care should be taken in their selection. To test the temper of a hook, attach a short piece of snooding to the shank, and sticking the point into a block of soft wood, pull fairly hard upon the snood. Upon

releasing the snood, the hook, if properly tempered, should spring back and regain its previous form. Sometimes, when used for spillers or trots upon rough ground, hooks are soft-tempered, so that if they should catch, the wire will bend, yet notwithstanding will be strong enough to hold a fish of medium size.

The sizes of hooks vary slightly according to different makers, but as a guide a plate is here inserted with the numbers attached. These hooks are manufactured by Messrs. W. Bartleet and Sons, Abbey Mills, Redditch, and they can be relied on. Messrs. Alcock, also of Redditch, are probably one of the largest makers of hooks in England, and their goods are always satisfactory. The hooks of either maker can be obtained through their nearest agent. Several sizes will, of course, be necessary, but the medium ones, ranging from 6/o down to 3 (Bartleet's scale), will be most useful. After being tempered, hooks are tinned or galvanised to preserve them from rust; some are japanned black with the same object. The Dublin Limerick and round-bent hooks (Plates I., II., and III.) are the most useful shapes for sea-fishing, next to which would come the Kirby bend. Hooks for attaching to snoods have usually shanks with flat ends or "tangs." Some are provided with eyes or rings, whilst in others the shank is merely tapered for whipping.

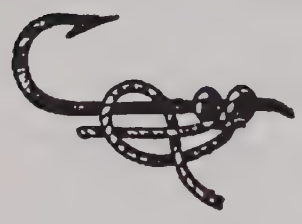


Fig. 8. Attaching Fine Snooding to a Hook, two half-hitches being passed over the shank and a third over the bend.

Fig. 8 represents the best method of attaching fine snooding to a hook with tang or flat end. Hold the hook in the left hand with the end of the snooding against the shank, and pass two loops or "half-hitches" over the end with the right hand. Haul these taut, and pass a third half-hitch over the bend and the end held in the left hand. Care must

be taken that the tang is not defective, otherwise the snooding is liable to slip.

The next fastening (Fig. 9) can only be formed with two-strand snooding. Having passed the two ends through the loop, put the bight thus formed over the end of the shank and haul it taut, thus making a " lark's-head " knot. Now pass a single half-hitch over the bend as in the last case, which renders it perfectly secure.

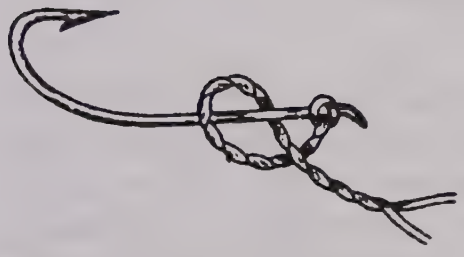


Fig. 9. Attaching Two-stranded Snooding to a Hook, performed by making a " lark's-head " knot upon the shank, and then passing a single half-hitch over the bend.

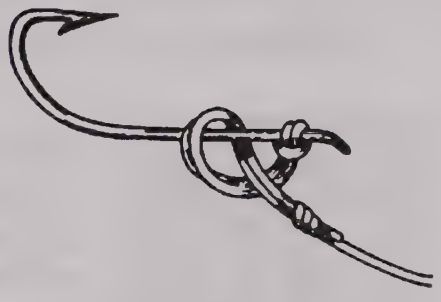


Fig. 10. Attaching a Gut Loop to a Hook, formed by a " lark's-head " knot as before, and a single half-hitch with both parts brought over the bend.

To a hook only provided with a tang gut is difficult to attach securely, but Fig. 10 shows a reliable method. For this purpose a long loop, previously formed at the end of the trace, is necessary. Make a lark's-head knot upon the shank as previously described, then form a single half-hitch with the two parts alongside it, passing the bight over the bend of the hook. It is advisable to moisten or to soak the loop before attaching. Several other methods are adopted for attaching eyed hooks, and these must be reserved for a subsequent chapter.

Chapter III.

CASTING LEADS AND RIGGING UP HAND-LINES.

N sea-fishing there are several kinds of leads used, and most of them may be purchased cheaply at any of the ordinary tackle-shops. At times, however, it may be an advantage to have the necessary appliances at hand for casting a lead or two, especially when situated at a distance from the usual shops, and it is an interesting occupation for a wet day.

For making leads or sinkers "casting" or "loam" sand is required, and may be obtained from a foundry. It is finer and more tenacious than ordinary sand; and, when moistened, the particles adhere together, which is necessary for properly forming a mould. Place the sand in a box about 6in. deep, ramming it down as tightly as possible, and smooth the surface with a trowel. This method is called "open-sand casting," and may be described as the simplest form, but quite suitable for our purpose. For most kinds of sea-fishing I prefer the conical leads with a flat bottom, because, when hauled in, they stand steadily upon the deck, and do not roll about to the annoyance of everybody.

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For casting these, a copper mould of the shape shown in Fig. 11 is required; also one or two large brass screw-eyes, as here depicted, for the rings at the top. The mould should be made of thin sheet copper, the two edges being brazed together so that the interior may be quite smooth. It should be 5in. deep, with a diameter of $\frac{3}{4}$in. at the top and $3\frac{3}{4}$in. at the bottom, inside measurement. The amateur, unable to make this mould, could easily order it from a tinman or a coppersmith. Take one of the brass eyes and press it into the sand as far as the bottom of the ring, leaving the screw

Fig. 11. Copper Mould for Casting conical leads, and brass screw-eye for ring.

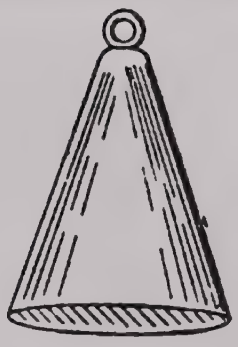


Fig. 12. Conical Lead complete with ring.

part uncovered. Now place the mould (Fig. 11) neck downwards over the screw, and pile sand around it to keep it in position. It is important that the mould should stand quite upright; otherwise the completed lead will not have a level base. Now weigh out some lead, allowing a little over for skimming, and melt it in an iron ladle. Remove any scum with an iron spoon and pour the lead into the mould. When cold, the lead may be removed, and if uneven the part around the eye may be rounded with a rasp. Fig. 12 shows the completed lead, the ring at the top being firmly held in the metal by means of the screw. The advantage of the above system is that leads of any weight, from 1lb. upwards,

may be cast in the same mould. An excellent plan is to stamp each size of lead with a figure punch, indicating its weight in lbs., so that, if one has to send a man for a particular lead, he will know at a glance which to bring.

For lighter leads of this shape the mould might be narrower; or they could be turned in a lathe out of wood. In the latter case, the wooden mould must be pressed into the sand until the base is level with the surface. For the eye a piece of brass wire, bent in half to form a bow, must be placed in position after removing the mould, and the cavity thus formed filled up with lead. Conical leads are sometimes devoid of the ring, a hole being bored through the top for attaching to the line.

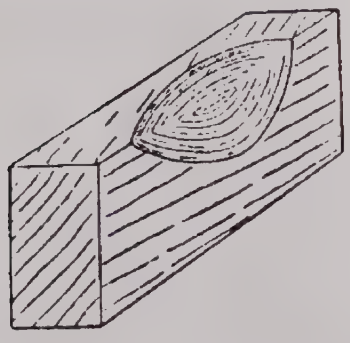


Fig. 13. Half of Wooden Mould, showing hollow, for casting boat-shaped leads.

Boat-shaped sinkers are extensively used for ground-fishing, and they may be cast as follows:—Get a piece of common deal, about 1ft. long and 3in. or 4in. square, and saw it exactly in half with the way of the grain. Having marked out on the inner surface half the width of the lead and also the depth, hollow out this portion as far as the lines with a spokeshave or a knife, as seen in Fig. 13. The other half of the block must be similarly treated, and the two pieces firmly screwed together. A lead of 1lb. weight will require a cavity 4½in. long, 1¼in. wide, and 1⅛in. deep, larger ones being in proportion. Great exactness is not, however, really necessary in forming the mould. Having connected the two pieces, procure a piece of stout brass wire and form an eye at each end, which should be afterwards soldered. Place this in the centre of the wooden mould, keeping it in position with a little putty, and then pour in

the molten lead. The length of wire will depend upon the weight of the lead, and should project about 4in. from each end, as shown in Fig. 14. To prevent charring the wood, moisten the hollow with a little clay and water, and then allow it to dry. The molten lead should also be permitted to cool somewhat before pouring it in.

Moulds may also be formed out of freestone, which will be found more durable than wood. A straight line should be first drawn on the surface and the top of the lead marked out, setting out one-half first and then repeating it on the other side of the line. This portion must be then scooped

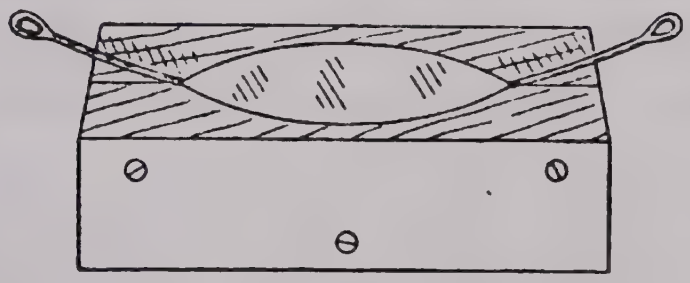


Fig. 14. Wooden Mould, screwed together, containing boat-shaped lead.

out with a gouge or other tool to the required depth. These leads may also be cast directly in sand by forming moulds in wood, a separate mould being required for each size. To remove the wood without damaging the mould, a gimlet or a nail should be inserted in the flat upper portion. Having formed the cavity for receiving the lead, the brass wire must be placed in position, being kept steady by means of a little of the sand, and the mould carefully filled up. By the latter method the wooden models will last for ever, whereas the others will wear out after a time.

Fig. 15 represents the lead completed, and as it would appear on removal from the mould. Instead of brass wire, a hole is sometimes bored at each extremity through which is

passed a piece of line, the two ends being spliced and then "served over" to stiffen it. This is called a "ganging," and professionals often prefer this to wire, though the latter is the simpler plan. Many of the leads sold in shops have the wire too short, rendering the snoods and main line very

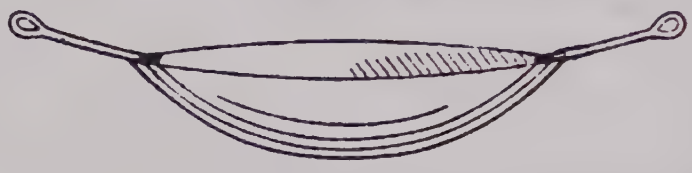


Fig. 15. Boat-shaped Lead complete, with wire and an eye at each end.

liable to become entangled. Sinkers of other shapes could be easily cast in sand from these directions, making models in wood as above described, though most amateurs will probably save trouble and purchase them ready-made.

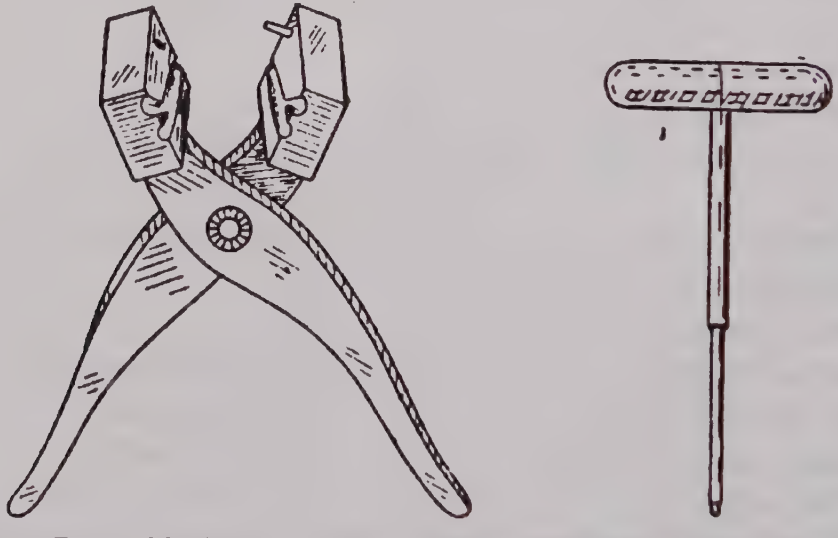


Fig. 16. Brass Mould for Casting Pipe-Leads (open); also Pin for inserting before pouring in the lead.

Pipe-leads, which have a hole running through the centre, are extremely useful for both hand-lines and rod-fishing, and Fig. 16 illustrates the mould for casting them. It is composed of brass, except the bolt connecting the two handles and

the small pin at the back, which are of steel. The jaws of the mould are each 2⅛in. long, 1in. wide, and ½in. thick, and when closed together the two halves of the inner hollows form the shape of the lead required, leaving a large hole communicating with them through which the lead is poured. Before casting these leads, the pin (Fig. 16), which is of steel with a wooden handle, must be inserted. When withdrawn after this operation, it forms the hole through the centre. Any pieces of lead, such as old piping, &c., will do for the purpose, and they should be melted in a large iron ladle. When completely melted, skim the metal and dip out a little with a smaller ladle, pouring it carefully into the mould. These small ladles are used for casting bullets and most gunmakers keep them. The mould should be well heated beforehand, otherwise the lead may be a failure; but any imperfect ones are easily re-melted. Pieces of flannel or cloth should be wrapped upon the handles to prevent their burning the hands. As each lead is cast, knock it out with a screw-driver or other tool into a basin of cold water. When cold, the small connecting piece must be cut off and filed down level with the rounded part. A mould of this kind costs about 25s., and could be obtained through a fishing-tackle maker. It manufactures leads weighing ¾oz.; but they vary in size up to ¼lb., being rarely made heavier in this style, except for very large nets.

Rigs for Hand-Lines.

These differ considerably according to the locality, nearly every seaside place having some peculiar arrangement of its own. In most cases, however, there is no real necessity for this difference in fitting up hand-lines. In fact, I have often proved by practical tests that a good rig which will answer in one locality may be used with equal success in another, providing there be some slight modification to allow for the depth

of water and the different fish which may be met with. It is most difficult to persuade an old fisherman to adopt any line but the one he has always been accustomed to use, which has probably been handed down by tradition through several generations. This fact probably accounts for the great variety of rigs, many of which are excellent, but in others there is room for much improvement in the general arrangement. The principal object in ground-fishing is to keep the snoods and baits clear of the main line, in lowering or raising them. If a conical lead is fastened to the line and the snoods are also attached below it, a foul will be the result, and valuable time may be spent in getting it clear. This is calculated to induce loss of time and loss of temper, both of which must be eschewed by the successful fisherman.

An excellent rig for deep-sea fishing or heavy work is shown in Fig. 17. The boom is 10in. long, and made of brass wire $\frac{3}{16}$in. in diameter. At one end a large soldered eye is formed, and the other is twisted spirally upon a brass reel. The latter is 1in. long, $\frac{1}{2}$in. in diameter at top and bottom, and $\frac{5}{16}$in. at the middle portion, to which the boom is connected. Through the centre of the reel is a hole large enough easily to receive a piece of brass wire, $\frac{3}{16}$in. thick, upon which it revolves freely. To the lower portion of this is brazed a brass eye, and at the top is another large eye or ring. The lead is attached as here shown by a piece of separate line, the ends of which are spliced together, so that any change is quickly effected. Make a lark's-head knot by doubling the line, putting it through the lower eye, and bringing the other end through the loop. Then pass the two parts through the ring of the sinker, open the loop and bring it over the base of the lead. If possible, always attach leads in this manner, as a wet knot is most troublesome to untie. The sid-strap, as it is called, should be

composed of finer line, about 1 fathom in length. At the end of this a swivel should be attached, and then come the snoods with their hooks The snooding, which is in one piece 1½ fathoms long, is doubled and attached to the eye of the swivel by a lark's-head knot, as just described.

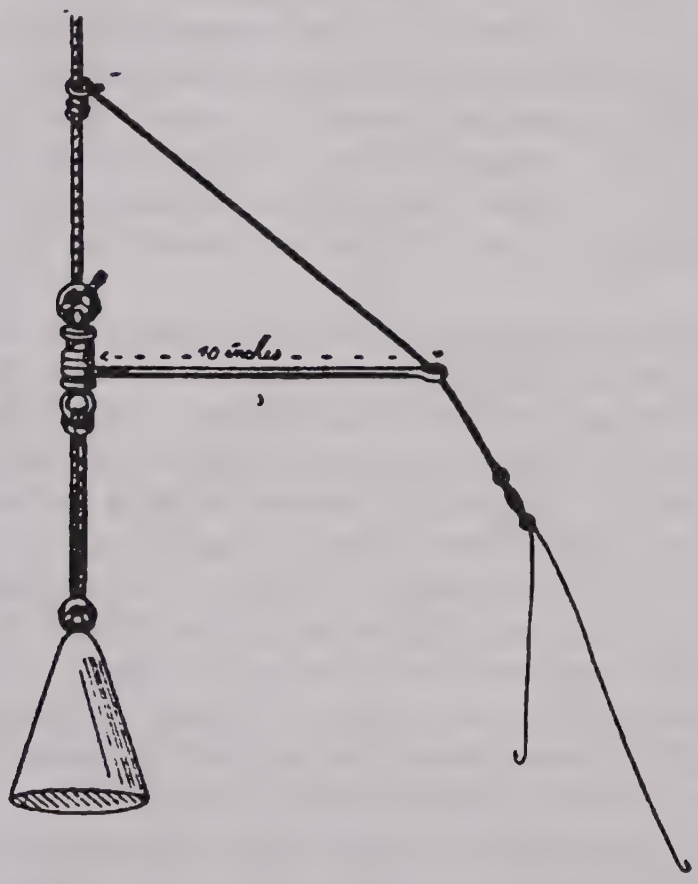


Fig. 17. Improved Rig for Deep-Sea Fishing, complete, showing boom revolving upon brass reel, and lead attached by independent piece of line,

allowing one hook a longer length than the other (Fig. 17). To make this gear more sensitive to a bite, the end of the sid-strap may be attached to a ring or a swivel revolving upon the main line about 1ft. above the boom, and kept from slipping down by a knot; this, which should be large, must

be tied before attaching the main line to the upper ring. If desired the sid-strap may simply be fastened to the projecting eye of the boom. Snooding alone can also be used without the sid-strap. I have taken large numbers of Bream, Whiting, Congers, and other fish by this rig, and can confidently recommend it. From its construction it is less liable to foul than any other rig. The strength of the lower line will much depend upon the size of the fish; but fine hemp or flax snooding immediately above the hooks will be the safest material. For inshore fishing the boom could be made lighter, and the brass reel could be dispensed with, substituting therefor a piece of stout wire having an eye at both ends.

A very simple hand-line for small fish, such as Dabs, Whiting, small Pollack, and others, which I have often used successfully, may be fitted up as follows. Take a pipe-lead, 1oz. to 3oz. in weight, and pass the end of the line through it, keeping it in its position by knots or by a coil or two of lead wire on either side. Attach a small swivel, and then 3ft. or 4ft. of fine snooding. Use gut for the hooks, and fasten one about 18in. higher up the snood than the other. This simple arrangement will always keep clear, and there is nothing about it to cause the fish any alarm. Wherever there is not much current and light leads will keep the bottom, the above plan may be successfully practised.

Along the South-west coast the boat-shaped, or "Plymouth Rig," as shown at Fig. 18, is much favoured by practical fishermen, and its simplicity commends it to special notice. Below the lead the arrangement already described is adopted; but for offing fishing the snooding and sid-strap should not measure more than 9ft., while for inshore 4ft. or 5ft. will be enough. Sometimes the swivel is inserted a little distance from the end of the sid-strap, which terminates with a knot. Above this the snood is looped on by a lark's-head

knot, which may be easily detached when required. The snooding is composed of one piece, and the hooks (known as "couples") are arranged so that one will fish nearer the bottom than the other. In using this gear, lower the baits and snoods overboard first and then cast the lead some distance from the boat with a swing of the arm. Its shape will cause it to sheer away, and will prevent its fouling other lines which may be hanging perpendicularly. Messrs.

Fig. 18. Boat-shaped Rig complete, showing the different parts and portion of main line attached to the upper eye.

Hearder and Son, of Plymouth, have introduced an improved sheering lead, the peculiar construction of which causes it to descend in a slanting direction from the side of the boat. Upon reaching the bottom, these leads will lie at some distance from one another and lines from opposite sides of the boat may be worked without fear of entanglement. The snooding may consist of hemp, flax, or strong gut. Gimp is often recommended for the sid-strap, and its stiffness helps to keep the snoods clear of the line; but it is not to be relied

upon: 2ft. or 3ft. of twisted horsehair, rather finer than the main line may be very suitable. One great advantage of this rig is that the lead and its appendage are always hauled up endways, thus offering less opposition to the water than those fitted with the different chop-sticks. Sometimes three hooks are used when fish are numerous, the extra one being attached to a separate snood and fastened to the line above the lowest hook.

The Southampton Rig (Fig. 19) consists of a dip-lead, of plummet or conical form, through which passes a transverse

Fig. 19. Southampton Rig, consisting of a pear-shaped, or conical lead and a transverse bar of brass wire with short snoods fastened to each of the eyes.

bar made of brass wire or galvanised iron. The wire must be stout, and should project about 1ft. on each side of the lead. The line is attached by a spliced eye to a hole in the sinker, the loop being made large enough to allow of it passing over the base of the lead and one arm of the boom. To the eyes at the extremities of the boom short snoods with swivels are attached, below which gut hooks are fastened. Only two hooks should be used, one at each end of the spreader. It is manifest that with this gear only short snoods can be employed, the combined length of which must

not exceed that of the wire, otherwise they may become entangled. When drawn up it also offers great resistance to the water, which is in itself a serious drawback. This rig will principally be useful for beginners unaccustomed to the longer hand-lines. For small fish the snoods may consist entirely of gut without swivels; or the latter may be attached close to the boom.

Another form of chop-stick is the "Kentish Rig" an improvement on the Southampton Rig, inasmuch as the lead may be changed without having to detach the whole concern. The brass wire forming the boom is twisted in the centre around a ½in. mandrel or iron bar, and this part revolves upon a leather sling to which is attached the lead. Each arm of the boom should measure 8in. to 10in. in length, and be bent downwards so as to overhang the lead.

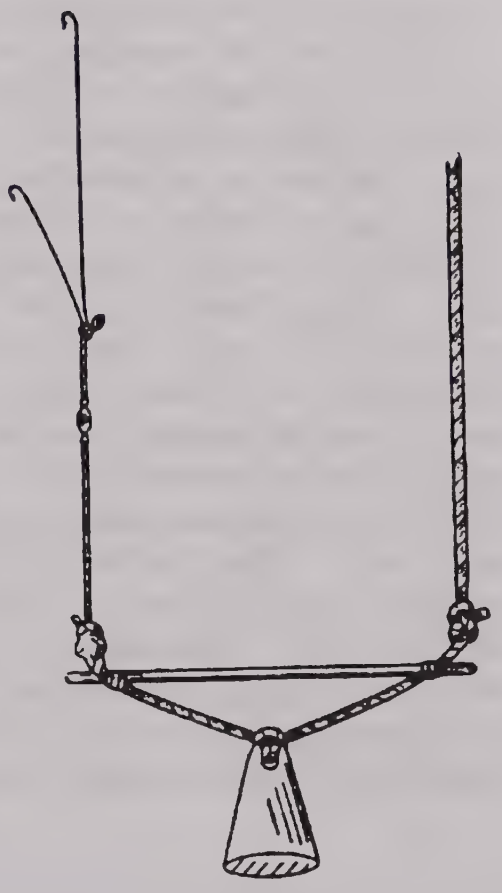


Fig. 20. Dartmouth Rig complete, showing spreader to which the sling holding the lead is lashed. The snoods descend parallel to the main line, as here shown.

The ends of the boom are furnished with eyes, to which are attached short snoods not exceeding 2½ft. in length, in the same manner as the Southampton Rig. By raising the wire boom, the lead may easily be detached from the sling when a sinker of additional weight is required. Owing to the

shortness of the snoods, and the close proximity of the lead, &c., above the fish when approaching the baits, this arrange- cannot be considered likely to afford the best results.

The Guernsey Rig is composed of a dip-lead, above which is placed a revolving chop-stick of wood. A hole is bored at the thicker end for receiving the line, and the other end is shaped like a dagger to which the sid-strap and snoods are fastened. The same principle is adopted in Fig. 17, which shows, however, an improved style of gear.

Fig. 20 represents the "Dartmouth Rig," which is an excellent contrivance. The lead is slung by an independent piece of line, having a spliced loop at each end, one to receive the line and the other the sid-strap. A spreader of galvanised iron or brass wire, 1ft. to 1½ft. long, serves to keep the snoods separate from the main line, and to this the sling holding the sinker is lashed. The illustration shows this gear in the act of descending, the hooks being parallel to the main line. When hauled up, however, they are drawn straight through the water, a great advantage over many of the other rigs. Three or more hooks are often used, but two will generally be sufficient. The snooding and sid-strap are rigged up in exactly the same manner as already described for the Boat-shaped Rig.

Chapter IV.

RODS, REELS, AND TACKLE.

ATTERLY rod-fishing in the sea has risen rapidly in favour amongst all classes of anglers, and now receives more attention from amateurs than any other method. This delightful sport is deservedly popular, for not only is it exhilarating and healthy, but the difficulties and dangers to be overcome in hooking and successfully landing a large fish render it specially fascinating.

Rods.

In the selection of a rod, the decision must largely be influenced by the kind of fishing, and the locality for which it is intended. For boat-fishing, short rods, rarely exceeding 8ft., are now used, and are usually composed of greenheart. Sometimes bamboo is employed for the lower portion and greenheart for the top, a very suitable combination, and one that contributes to the lightness of the rod.

An excellent weapon for boat-fishing is manufactured by Messrs. Hardy Bros., the celebrated rod-makers, of Alnwick, which they call the " Farne " sea rod, and one that may be highly recommended. Each joint is fitted with the " Hope "

pulley end, so that, when using heavy leads in deep water, the top may be dispensed with, and the middle joint utilised. All rods should be furnished with upright or "snake" rings, made of brass, phosphor bronze, or hardened German silver. To lessen friction, the tops of boat-rods should be provided with a small sheave or pulley to avoid wearing out the line. Where one can afford to play a fish, and is using a light lead, a rod of 11ft. or 12ft. may be used from a boat, but anything longer than this would tend to inconvenience.

For Tarpon, Sea-Bass, Tuna, and the enormous game fish which afford such exciting sport in American waters, Messrs. Hardy Bros. manufacture a double-built cane rod, with steel centre, of which the length is 7ft. 2in.; its price is 3 guineas. If fitted with pulley-end rings, these rods would be admirably adapted for dealing with large Congers, Skate, Rays, and other monsters of the deep. The B.S.A.S. combined whiffing and deep-sea rod made by this firm is also excellent, and suitable for any kind of boat-fishing. Particulars of it may be obtained from their catalogue.

Messrs. C. Farlow and Co., 191, Strand; Messrs. A. Carter and Co., Ltd., 137, St. John Street Road, London, E.C.; and Messrs. Peek and Sons, 40, Gray's Inn Road, London, E.C., are other reliable firms which supply all requisites for the sea-fisherman.

For spinning it is an advantage to have all the rings of equal size to enable the line to run more freely. In fishing from rocks and piers a spinning or pike rod, with upright brass rings, and 14ft. to 16ft. in length, is capital for general purposes. It should be as light as possible, and I recommend cane or bamboo for the lower joints. French sea-anglers often use nothing but a single bamboo of great length, but generally devoid of running tackle, so that a large fish often breaks the line and escapes. A revolving

end-ring should always be fitted, the "Bickerdyke" pattern being admirable. After fishing, always wipe a rod carefully with a cloth, and never put it away in a damp condition. It is also a good plan to grease the ferrules with a little tallow before fitting them together.

In clambering over rocks, the angler may often meet with an accident and break his top joint. Figs. 21 and 22 show the best method of splicing it afresh. Cut off the broken ends with a knife, as far as the uninjured wood, and scarf

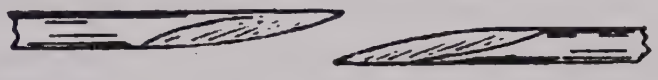


Fig. 21. Two Parts of a Broken Rod prepared for gluing together.

them neatly together, as in Fig 21. Unite the two parts with the best glue, and bind with string until properly set. When the glue is dry, whip the splice with well-waxed silk or thread. In doing this, attach the silk to a hook, or other fixture, at some distance from the end. Hold the end against the splice with the left hand, and roll the silk evenly upon it. A tight strain should be kept upon the silk whilst

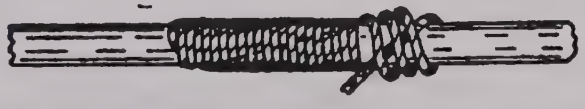


Fig. 22. Method of Finishing Whipping, dotted lines showing the direction of the joint.

the joint is being turned round. Upon arrival at the other side, make three or four loose coils, and pass the end backwards through them, tightening each turn in rotation (Fig. 22). When finishing off, take care that the last coils are not allowed to slacken.

Fig. 23 shows how to whip on a ring, an operation often required of the amateur. After binding down one side of

the ring, pass the silk underneath the opposite arm, and take two or three laps over the wood only below the eye. The end B, as seen on the right of Fig 23, will then be in position for continuing the process, and the whipping will thus be uniform. To finish off, make a loop with the end A, pass three coils over it, and then put B through the bight. By pulling at A, the end B may be drawn beneath the coils, which completes the fastening. This operation is shown on the left side of Fig. 23. Either of the above methods may be used for fastening off a whipping. After cutting off the ends, all whippings should be varnished, the varnish being made by dissolving shellac in spirit of wine to the consistency of treacle. Apply it with a small flat brush, and

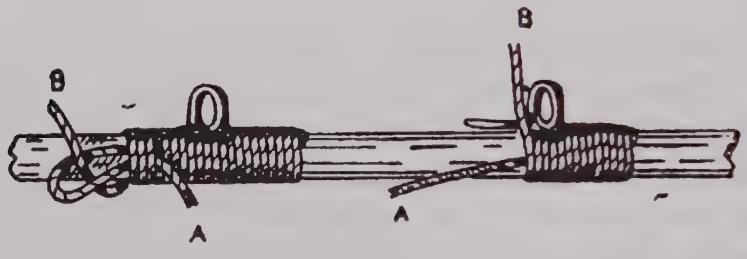


Fig. 23. Whipping a Ring on to a Rod, A being the end of silk held in the left hand, and B the working part. On the left is shown the method of finishing off.

keep the bottle tightly corked when not required. This varnish, ready prepared, may be obtained from any fishing-tackle maker.

Reels.

In selecting a reel for sea-fishing, avoid any complicated arrangement; simplicity of construction should be the first consideration. A Nottingham reel is usually preferred, as the barrel is large, thus greatly facilitating the winding-in of a long line. Fig. 24 illustrates an inexpensive kind, which, for most purposes, will be quite suitable. By pushing

the brass bolt A downwards, the check is released, and a free-running action obtained, which may be regulated by a brass nut on the other side. All reels should be fitted with a line-guard to prevent the line from over-running itself when in use. A useful size for boat-fishing would be 5in. in diameter, but a 4in. reel would carry sufficient line for angling from piers or rocks. To prevent the line from running out too fast, it is a good plan to press the thumb against the edge of the reel, which acts as an additional check. Steel or iron, being extremely liable to rust, should be avoided in the construction of reels for sea-fishing.

The "Farne" sea-reel, made by Messrs. Hardy Bros., and fully illustrated in their catalogue, I can thoroughly recommend. It is made of "alumin," enamelled to stand sea-water, and is fitted with "Silex" check and Bickerdyke line-guard. The illustration shows the method of releasing the check. The above firm inform me that they are engaged on a new reel for sea-fishing, which promises to be a great success. In its construction a new material is employed that may be soaked in salt water without showing any signs of corrosion; this, of course, is a valuable property. There are other excellent reels manufactured by Messrs. Farlow and Co., A. Carter and Co., Ltd., and Peek and Sons, particulars of which could be obtained on application. For pier-fishing an ordinary bronzed check winch, 3½in. in diameter, will be quite satisfactory if wiped carefully after a day's fishing. It should

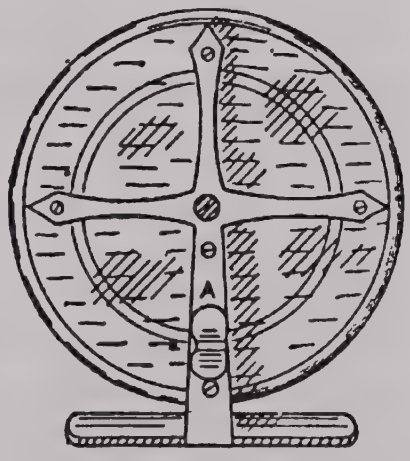


Fig. 24. Nottingham Reel, showing the back. By pushing the bolt A downwards, the check is released.

be taken to pieces occasionally, and the working parts cleaned with a piece of old rag.

Lines.

The most reliable materials for reel-lines are undoubtedly hemp, flax, or cotton. Silk dressed lines are frequently used; but, though undeniably strong, they do not sufficiently resist the action of salt water. Ordinary hemp or flax snooding will answer well for most purposes, and it should be tanned to preserve it, as explained in Chapter II. Plaited hemp or flax lines are now largely used, and, being cheap, they are within the reach of everybody. The length of line will depend upon the kind of fishing; but 100yds. will usually be enough for boat-angling, and 60yds. when fishing from piers or rocks. A large Bass will often take out the latter amount, and for this class of fishing an extra quantity should be on the reel. The Manchester Cotton Twine Spinning Co., Compstall, near Marple, manufacture excellent cable-laid reel-lines, which show no liability to kink, and I have found them very satisfactory. The waterproof dressing wears off after a time, but the company now supplies a composition, consisting principally of gutta-percha and tar, enabling anglers to redress their own lines. A cake of this preparation costs 1s., and full directions are given as to its method of application. Always unwind your line after returning home, and allow it thoroughly to dry.

Gut Traces or Casts.

Directions for knotting these were given in Chapter II., though probably many will purchase them ready made. It is very important only to use the best quality of gut, especially when expecting large fish, and traces should be carefully knotted. Finer casts may be used with a rod than with a

hand-line, and anything stronger than stout double gut will rarely be required.

Wire Lines.

Generally speaking, these are not to be recommended, as they lack pliability, and have a tendency to kink—faults which can hardly be overlooked. Hercules gimp and phosphor bronze are sometimes employed for traces instead of gut, and amongst rocks where the line is liable to be cut by a large fish they are often useful. After fishing they should be rinsed in fresh water, and a little vaseline applied. The former will rust unless this treatment is adopted. Reel lines are now composed entirely of German silver wire plaited, and many of the best judges speak of them in the highest terms. In a strong tideway they have a decided advantage, as lighter leads may be utilised for keeping the bottom. Probably wire will gradually find its way into public favour, and it is often used for traces in Pollack-fishing, though I still prefer gut.

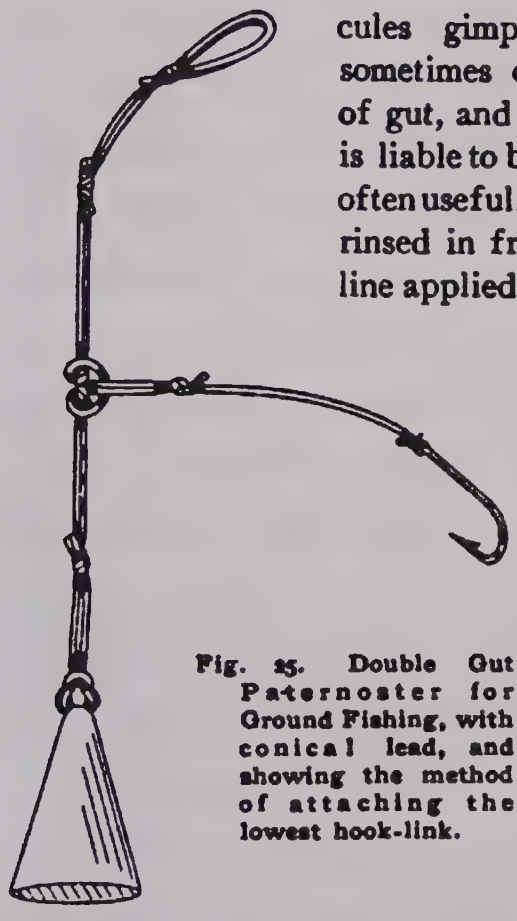


Fig. 25. Double Gut Paternoster for Ground Fishing, with conical lead, and showing the method of attaching the lowest hook-link.

Paternosters.

For ground-fishing from boats these are largely used, and are also adapted for either pier- or rock-angling. Fig 25

shows an extremely simple form, with the method of attaching one of the hooks. Make a gut collar, about 2yds. in length, with a loop at both ends. To one of the loops affix a conical or pear-shaped lead: above this attach three hooks on gut 8in. or 9in. long, having a loop at the end of each. To connect the hook-link with the collar, pass the loop at the back of one of the knots, and then put the hook through. The lowest hook should be just above the lead, and the others 18in. apart. For fish of moderate size, double gut may be used for the main portion, and single for the hooks, which will be safe under most circumstances. When using heavy leads, gimp or wire should constitute the principal line, and strong single or double gut be attached to the hooks.

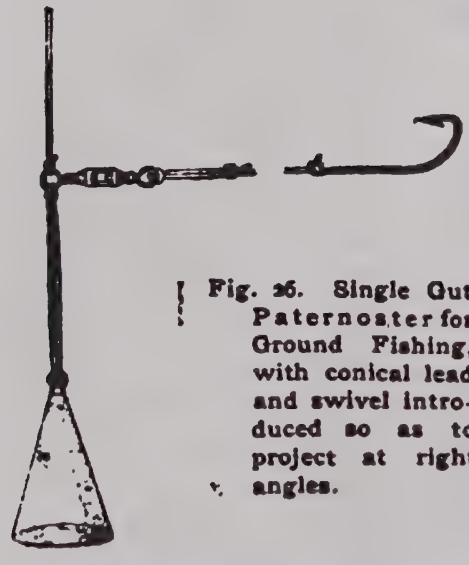


Fig. 26. Single Gut Paternoster for Ground Fishing, with conical lead and swivel introduced so as to project at right angles.

Swivels are often introduced so as to project at right angles to the line, and Fig. 26 represents the lowest hook thus attached. The eye of the swivel should be flattened into an oval form to facilitate the attachment of the gut above and below. In angling for Dabs and other flat-fish it is a good plan to extend the lower hook-link, making it about double the length, so that it will lie upon the bottom, adding another hook about half-way down. However, the fewer hooks used, the less liability there will be for entanglement.

Paternosters are often supplied with short booms to keep the hooks clear of the main part, and to provide a direct strain upon the line. Without mentioning all of these

arrangements, the "Diamond" Straight Pull Paternoster, sold by Messrs. A. Carter and Co., is specially to be recommended, the swivel head providing for the twisting of a fish, which, in the case of a Conger, is so trying to the gear.

Leads.

For paternosters, conical or pear-shaped leads are the best. Two or three sizes may be needed for necessary changes. An illustration (Fig. 27) is here inserted of Messrs. Hardy Bros.' conical lead, showing registered attachment. This arrangement enables one to attach or to detach the lead without being obliged to pass the loop over its base, as is necessary with the ordinary type. The "Mahteb" adjustable sea-lead is a useful contrivance, by means of which the weight may be increased or reduced by the addition or removal of different sections. It is patented, and may be obtained from any tackle-maker. Carter's "Deal" sea lead is another useful pattern and consists of several parts, whereby the weight may be regulated. In paternostering, a long-shaped lead descends more readily in the water than one of a stouter form, and a piece of old piping, filled with lead, and having a brass eye cast in the top, will provide an excellent one.

Fig. 27. Hardy's Conical Lead, with registered attachment for gut loop.

For whiffing or spinning, a pipe-lead of 1oz. to 8oz. in weight is as useful as any, and may be merely threaded upon the line above the trace. Improved patterns of these leads, in which the principal weight hangs below the line, are now made. Of these, that known as the "Field" pattern or "Geen's Patent Lead" will answer every requirement. The "Hamus" adjustable whiffing lead, sold by Messrs. Carter and Co., is another useful style. It is made in the

shape of a long barrel, with six distinct sections, and may be used in weights, ranging from 1oz. to 8oz. The "Archer-

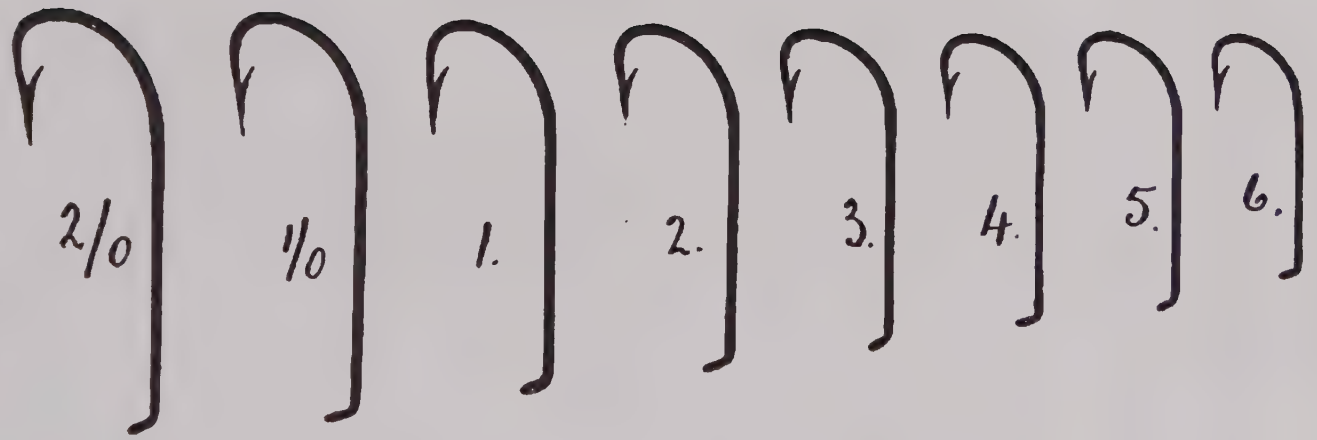
Fig. 28. "Archer-Jardine" Lead, placed upon the line by coiling it round the grooves.

Jardine" lead, shown in Fig. 28, is a pattern much esteemed for spinning and other rod-fishing, and is often painted green to render it less visible. The line is attached, as here illustrated, by coiling it through the wire and then over the grooves, commencing on the left side and finishing on the right. For spinning it may be easily curved with the fingers to keep the trace and line from fouling one another.

Floats.

Fig. 29. "Fishing Gazette" Float complete. The peg must be removed before inserting the line.

For boat-fishing it is seldom necessary to employ a float; but from piers or rocks it is sometimes useful to keep the line in deeper water. Fig. 29 represents the "Fishing Gazette" float complete, before inserting the line. Remove the wooden peg, and pass the line through the slit, replacing it firmly after this operation. The advantage of this float is that it may be quickly adjusted without having to disconnect the trace. A porcupine quill float may also be used, which may be easily attached by passing a couple of half-hitches over the top and bottom of the peg; or by means of the rings in the ordinary way. Those of a rounded form are to be preferred in rough weather as they ride better over the waves. Luminous floats are now sold, and for



Scale of Messrs. W. Bartleet & Sons' "Archer" brand eyed Limerick Hooks, which are very serviceable for Rod-fishing. The sizes correspond nearly with "Pennell" Limerick Hooks, and Figs. 31, 32, 33, and 34 show the best methods of attachment. The hooks are the exact size.

evening fishing they offer special advantages. Fig. 30 shows the Slider float, a useful pattern for fishing in deep water, and sometimes used for boat-fishing. As its name implies, it travels up and down the line, so that, when the latter is drawn in, it rests upon the shot or weight lower down; but, when cast out, rises again to the surface of the water. A stop (B), consisting of a piece of gut or rubber band, must be tied on the line according to the depth the angler requires to fish. It is most important to arrange the weight so that the float will ride perpendicularly on the water, and not flat upon the surface.

Fig. 30. Slider Float, kept as high as necessary on the line by the Check B.

Hooks.

Several kinds of hooks, with the methods of attaching them, were described in Chapter II., and these will be quite suitable for rod-fishing. Of late years, however, the "Pennell" Limerick hooks, with turned-down eyes, have gained much popularity, and may be used for all kinds of fish. The least motion suffices to drive the barb home, and their holding qualities are undeniable. Several sizes should be carried, and the old method of numbering them will hereafter be quoted. Messrs. W. Bartleet and Sons, Abbey Mills, Redditch, have kindly sent me specimens of their "Archer" brand Limerick hooks (Plate II.) with turn-down looped eyes, and they can be highly recommended. The eyes are looped, which affords a stronger hold for the gut, and strengthens the shank at the part which is weakest. For tying flies, these hooks appear to be just the

thing. The numbering is as nearly as possible that of the "Pennell" hooks; so that no difficulty will be found in ordering them.

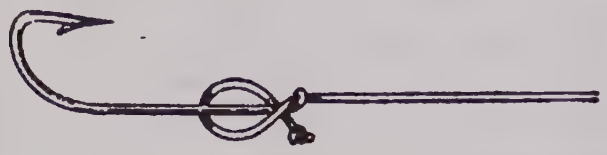


Fig. 31. Simple Jam Knot for attaching Gut to eyed hook, a knot being tied at the extremity to prevent slipping after passing the end through the eye.

In attaching eyed hooks several methods are adopted, but the following will probably meet all the requirements of the sea-angler. Fig 31 shows the simple "jam" knot, formed

Fig. 32. Double Jam Knot for connecting Gut, the end being brought twice round the shank and then introduced beneath both coils.

by putting the gut through the eye, bringing the end round the shank, and passing it under its own part. After passing the end through the eye, a single knot may be tied, as here

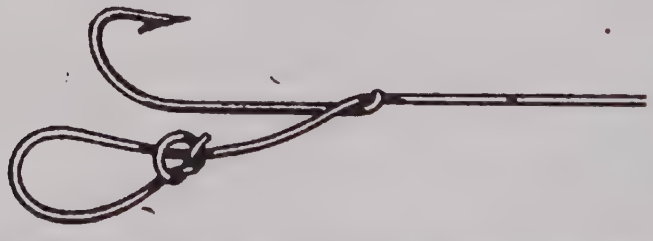
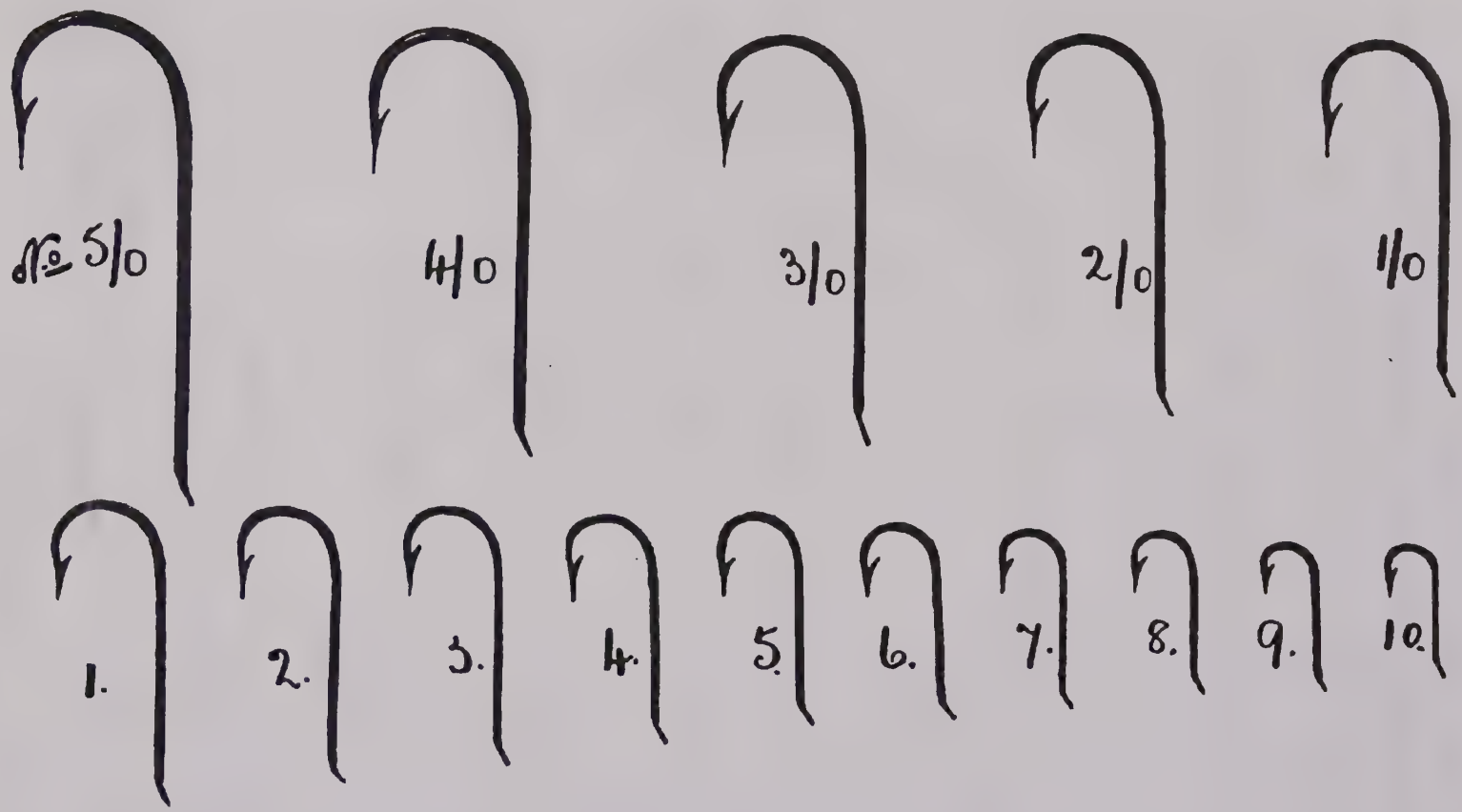


Fig. 33. Turle Knot for attaching Gut. After passing the end through the eye, a running loop is formed, passed over the bend, and then hauled taut.

illustrated, to prevent its slipping. In Fig. 32 we have the double "jam" knot, which is formed like the last, except that two complete turns should be made with the gut, and



Scale of Messrs. W. Bartleet & Sons' Round-Bent Hooks. These are principally used for Ground-fishing, and are attached by the methods shown by Figs. 8, 9, and 10. The Hooks here represented are the exact sizes. Anglers by simply referring to them will be able to correctly name any desired size.

the end inserted beneath both parts. It is a strong fastening, and there need be no fear of its slipping.

The "Turle" knot, as shown in Fig. 33, is another excellent method well known to fly-fishermen. Pass the gut through the eye, and releasing your hold of the hook, tie

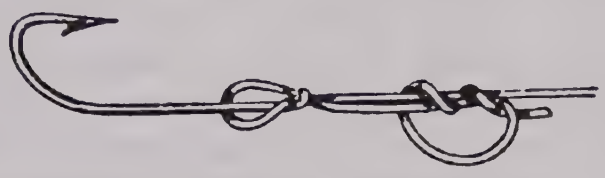


Fig. 34. Double Slip-Knot attachment for Gut, formed by putting the end through the eye twice as here shown, and then by tying one-half of a double Fisherman's Knot upon main part.

a single knot with the end around the main part, forming thereby a running loop. Bring this loop over the bend of the hook, and draw the knot tight just below the end of the shank.

A still stronger fastening is given in Fig. 34, applicable to

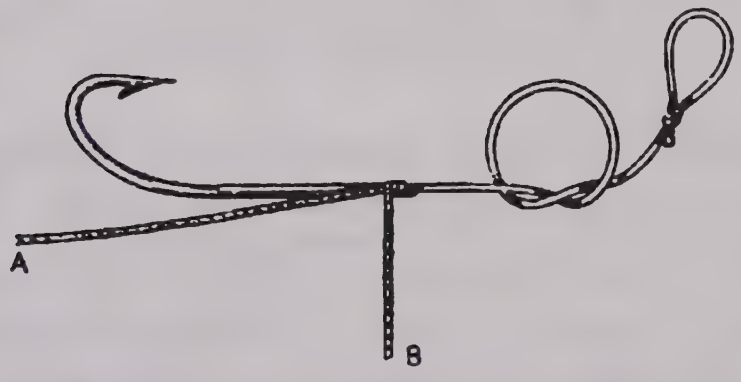


Fig. 35. Commencing to Whip a Hook on to Gut, A being the end of silk held against the shank with the left hand, and B the working part.

hooks with a large eye, through which double gut or snooding can be passed. Having inserted the gut once through the eye, bring the end round the shank, and pass it through again; after which tie one-half of a double fisherman's

knot (Fig. 4) upon the main line. Tighten the knot, and draw it down to the eye of the hook.

Hooks with tapered shanks will require to be whipped on with well-waxed silk or thread. Take a strand of gut, and having formed a loop at the end (Fig. 6), slightly bite the extremity of the gut so as to flatten it and prevent its drawing. Lay this portion against the shank, and commence to whip, as shown in Fig. 35, A being the end held in the left hand, and B the working part. Having arrived near the bend, make a loop with A, and pass about three turns over it. Put the end B through the loop, as shown in Fig. 36, and by taking hold of A draw it beneath the coils. Care

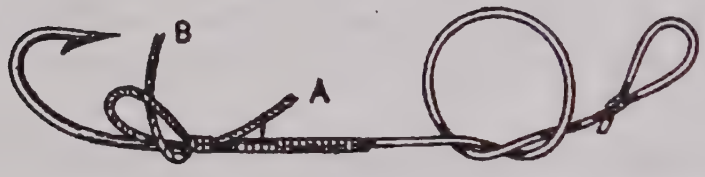
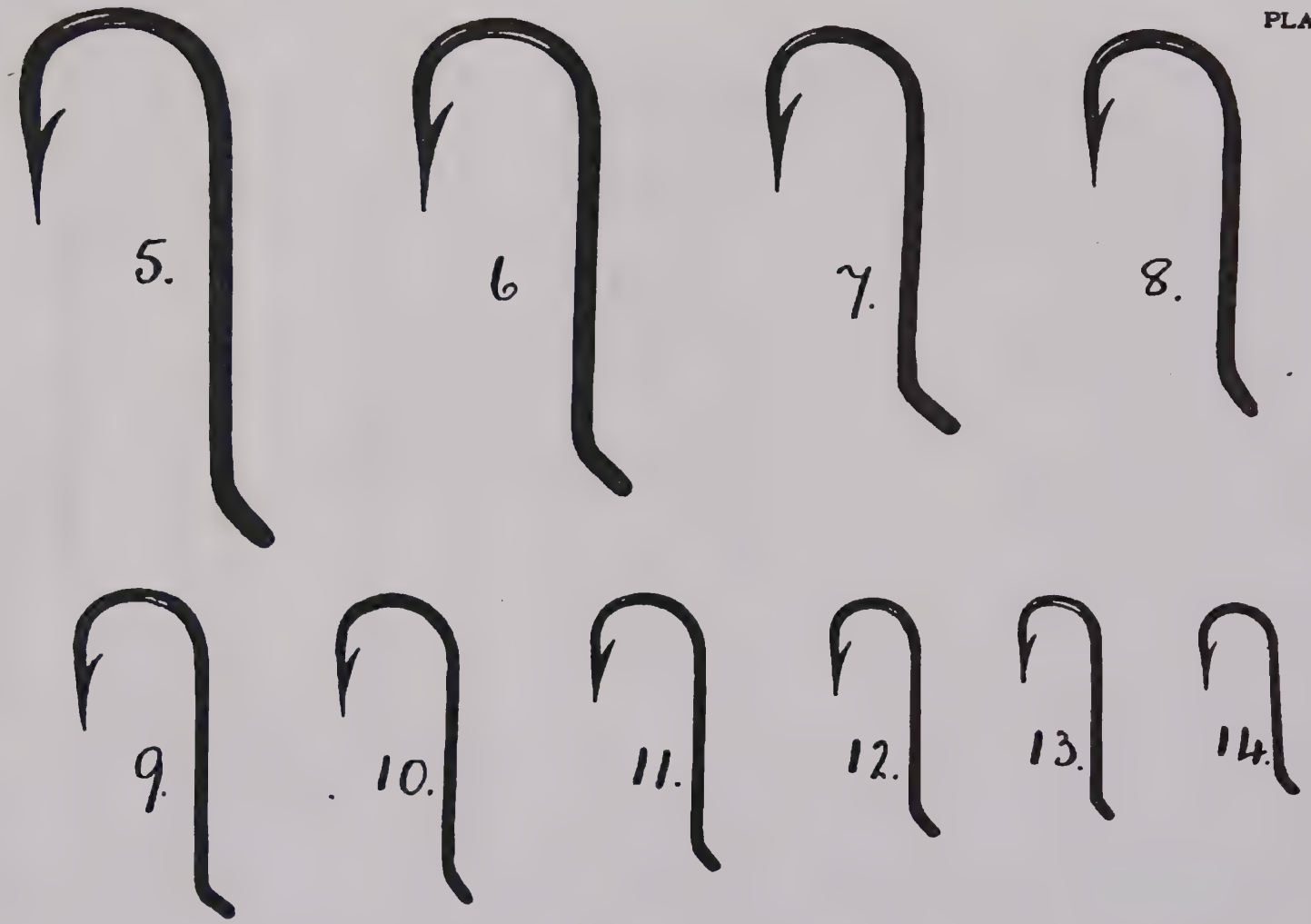


Fig. 36. Finishing Off the Whipping, accomplished by forming a loop with A, passing three coils over it with B, and inserting the latter end. By drawing at A the loop is pulled beneath the whipping.

must be taken that none of the turns are slack, and a certain strain must be maintained upon the whipping silk. When completed, cut off the ends, allowing a slight margin. Red or black silk twist, obtainable at a draper's, is the best for whipping; it should be treated with cobbler's wax, melted into a small cardboard pill-box, when it is easily dealt with. Always moisten the thumb before drawing the silk through. If the end A refuses to slide, breathe upon the part so as to soften the wax. Varnish the whipping with shellac varnish, as mentioned under "Rods." If the silk is wound on firmly and evenly over the shank, the gut will never draw. Double or treble gut strands are treated in exactly the



Scale of Messrs. W. Bartleet & Sons' Ringed Round-Bent Hooks. These are easily attached to snooding, and are useful

same way, but take care to get the ends level before whipping them to the hook.

A hook with tapered shank is often provided with a gut loop whipped on to it, as in the case of salmon flies, which forms an easy and strong means of attachment, with either

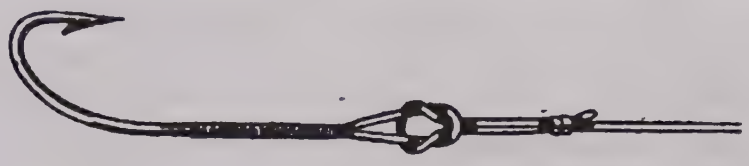


Fig. 37. Attaching one Gut Loop to another, performed by inserting the former through that of the hook, opening it, and bringing it over the bend.

single or double gut. Fig. 37 shows a hook thus fitted, and the method of connecting it with another gut loop. Pass the loop at the end of the trace through the former, and bring it over the bend of the hook, making them interlock as illustrated. Fine snooding may be used in place of gut in most of the instances above-mentioned.

Chapter V.

NATURAL BAITS AND HOW TO FIND THEM.

MANY amateurs will rely upon their boatman to supply them with all the bait they may require for a day's fishing, and will not usually be disappointed; but those who take the trouble to hunt for bait themselves will be independent of everybody, and will also find that the pursuit is an interesting and profitable one, almost as entertaining as the principal methods of fishing. Many curious specimens of the marine world are brought to view whilst lifting up large stones or investigating the crevices of rocks, which, by the casual observer, would be entirely disregarded. To the lover of natural history the search after bait of various kinds may therefore be aptly described as a pleasure in itself. It is most important that all bait should be perfectly fresh, except in a few rare instances, in which it is sometimes preferred stale. Fish that has been preserved for some time in ice and then finds its way to the fishmonger's stall should be avoided if possible, as its flavour and attractiveness have to a large extent departed.

Pilchard.

Of all fish utilised for bait this is the most esteemed, owing to its oily and savoury nature. In many Cornish towns Pilchards are regularly obtainable during the summer months, and are sold at an average of about five a penny, occasionally being considerably cheaper. Sometimes they are so plentiful that they are used for manuring the land. These fish have the disadvantage of being tender, and it is therefore rather difficult to keep the pieces on the hooks. It is usual to sprinkle rough salt plentifully among them, and even with this precaution they are generally soft and worthless by the end of the day. There is scarcely a sea-fish that will not greedily devour a morsel of this savoury bait, and for all bottom-feeders it is invaluable. The principal supply of Pilchards is maintained by drift-boats at Penzance, Falmouth, and other places, which depart in the evening and return on the following day. The salted Pilchard, or "Fair Maid," as it is locally termed, is occasionally substituted for the fresh article.

Herring.

In localities where Pilchards are unprocurable, which is generally the case apart from Cornwall, this fish is largely used. It resembles the former closely in appearance, but is deficient as regards flavour, yet is a very good bait for all kinds of fish. Like the Pilchard, its flesh is soft, and care must be taken in placing it on the hook. When suspended by the back fin the Pilchard remains in a horizontal position; whereas the Herring is "down by the head," to use a nautical expression, a simple experiment by which the difference between them may be distinguished.

Long-nose, Gar-pipe, or Mackerel Guide.

These fish, also called Snipe-Needle, from their long bill and sharp teeth, are often cut up into bait, which is excellent

for most kinds of fish, being specially attractive from its peculiar smell. In form this fish is very slender and its shape has some resemblance to that of a large Sand-eel, which enables it to pursue its prey with great rapidity. A fine specimen will often measure 2ft. or more in length. These fish usually swim near the surface, frequenting the same localities as Mackerel. Unlike most kinds of fish, the backbone is green, and the flesh also has a tinge of the same colour. Particulars regarding its capture are supplied in Chapter VII.

Mackerel.

Being tougher than either Pilchard or Herring, this fish forms admirable bait, and at most places it is procurable all through the summer. If the pieces, when cut, are found to be too thick, remove with a knife a little of the flesh on the lower side. The Mackerel, after being caught, deteriorates very rapidly in flavour, and the fresher it is used, the better. If possible, it should be captured on the same day as it is required for bait, which, by means of the methods hereafter described, can usually be effected. In cutting up fish it is sometimes advisable to leave the bone so as to afford a firmer hold for the hook.

Sprats.

These fish, which are a distinct species, though often wrongly called young Herrings, form excellent bait for Whiting, Pollack, and other fish. They may be used whole or cut up into pieces, according to the size of bait required. At Teignmouth, Torquay, and other places they are taken by nets in large quantities, being often utilised instead of Sardines, for which they make a good substitute. Preserved Sprats are sometimes recommended, and are sold in bottles by tackle-makers. The following is a useful preparation for preserving baits: Formalin,

2 fluid oz.; water, 20 fluid oz.; glycerine, 5 fluid oz. If the baits are kept for some time, the quantity of formalin should be reduced to ½oz. or 1oz., otherwise it is apt to harden them too much to be conveniently used. Baits may be kept for a considerable period in the above solution, and when difficult to procure, a supply of them would be ensured.

Chads.

For ground-fishing Chad is often cut up into bait, and is not to be despised when the usual supply is difficult to obtain or is liable to run short. For large Pollack, Congers, Hake, &c., a whole Chad forms an excellent bait after removing the head and backbone. They are also sometimes used alive.

Sand-eels and Launce.

These silvery and delicate little fish are greatly in request for drift-lining and other methods. They inhabit sandy beaches all round the coasts of Great Britain, entering the sand during the receding tide and remaining concealed until the bar is again covered. Spring tides are the best to search for them, and a soft, sandy beach, without much shingle, is a likely locality. In the daytime they can be obtained by digging in the sand with a fork or a shovel, throwing the sand quickly on to the dry surface. When a Launce is unearthed it must be grasped at once, and transferred to a basket or a bucket. Always take a little sand together with the fish, otherwise it is extremely liable to slip through the fingers. Try near the edge of the water or in patches of sand amongst the rocks.

Another plan commonly practised is by means of a launcing-hook. This instrument is made of iron, curved slightly at the point and fitted into a wooden handle. The iron projects 8in. from the handle, and is ¼in. wide at the base, tapering towards the hook, the inside edge of which is rather blunt. As seen by Fig. 38, this is drawn through the sand

at a depth of a few inches. When a fish is felt, it is raised by means of the hook, grasped quickly in the hand, and deposited in the basket. The dotted lines show the usual method of working the hook, and it is always directed towards the person. A moonlight night is the best time for Launcing when the tide is low, about 10 p.m. or 11 p.m. On dark nights a lantern must be carried. By this method I have sometimes taken a basketful of Launce in a short space of time, and it is most exciting sport. Any not required for bait should be fried and eaten, as they form a delicious article of food when in roe, but are not so good in winter. There are two species, called the Greater and the Lesser Sand-eel respectively. The former attain a length of 12in. to 18in., and are less common than the smaller variety. By placing Launce immediately into sand and water they can be kept alive until the next day, but the hook generally injures them slightly. Calm weather is the best for Launcing, and the likeliest spots are where the sand is soft. The Lesser Weever is a small silvery fish that often abounds in beaches frequented by Launce. It has a flat head, armed with two spines with which it can inflict a rather severe sting, and care must be taken not to grasp it hastily. A much more dangerous creature is the Greater Weever, which bears on its head an evil-looking black sting, and its sides are marked with green or blue stripes. Fishermen assert that a wound from this fish will cause the arm to swell as far as the shoulder, and, possibly, blood-poisoning might

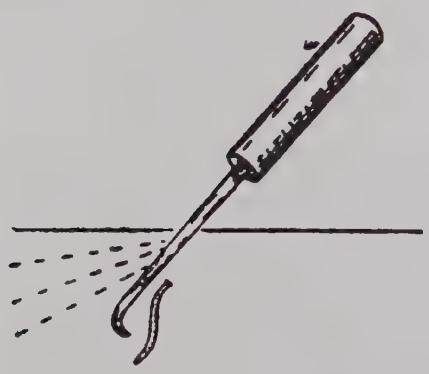


Fig. 38. Illustration showing the Method of Raking Launce, dotted lines indicating how the hook should be passed through the sand.

ensue. They are said to be excellent as food, and I have occasionally taken them when whiffing over sand. If the sand is suddenly stamped upon or beaten with a spade, Launce will occasionally jump out of it, and they are often found dead upon the surface. A rake having several prongs is also used for taking these fish. When required alive, they should be caught in a Sand-eel seine made expressly for the purpose. In many instances Smelts may be substituted for Launce, especially in baiting long-lines.

Cuttle.

Visitors to a beach will be familiar with a white, oval-shaped object often seen lying amongst the seaweed, especially after a gale. This is the back-bone, or rather, shell, of the Cuttle-fish, the soft part being often used for removing ink-stains from the fingers or as tooth-powder when finely pounded. It is also given to cage-birds and is sold in shops for that purpose. A much commoner variety, however, is the Squid or Pen-and-ink fish, which forms an excellent bait for ground-fish, such as Congers, Bass, and many others, and it is often known as "Cuddle" by the fishermen. Like the larger Cuttle, it ejects an inky fluid when alarmed which darkens the water and enables it to escape from its enemies. Trawlers catch a great number of Cuttle, from whom they can often be obtained.

The best time for taking Cuttle is in the evening or early morning, and they are found at no great distance from the shore. Attach a piece of fresh fish, such as Long-nose, Pilchard, or Mackerel, to the end of a line and, having lowered it to the bottom, draw it gradually to the surface. As soon as a Squid has seized the bait it must be raised very gently, and gaffed before it releases its hold. The fish must be instantly drawn under water by the gaff until it has discharged its ink, otherwise it will squirt it all over the

fisherman, and damage his clothing. Meanwhile the boat should be anchored or allowed to drift slowly. Fig. 39 represents the "Cuddling" rod or gaff, which simply consists of several square-bent hooks lashed to the end of a stick about 8ft. long, the barbs having been previously filed off. Squid are also taken with a "jigger," which consists of a piece of lead having a number of pins soldered to the lower part in a circle, and then bent upwards. It can be worked without any bait or gaff, but is not such a good method. Cuttle and Squid should be split open sideways, washed in salt water and hung up until required for bait. Near piers Squid often assemble in shoals, attracted by the angler's baits, and effectually drive every other fish away for a time. In Cornwall, September or October are the best months for catching Squid.

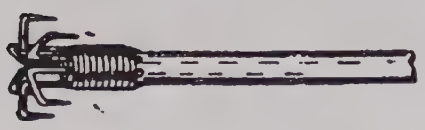


Fig. 39. Cuttling Gaff (usually pronounced "Cuddling") formed of square-bent hooks lashed firmly to one end, the barbs having been previously filed off.

Octopus.

The Octopus, or Poulpe, is a dreaded creature possessing a powerful beak, with which it tears its prey to pieces after it has captured its victim. It occasionally attains an enormous size, and has been known to attack boats. In Guernsey, the fishermen wade out at extreme springs, and poke about amongst the rocks with a hook or a gaff, using the Octopus when captured as a bait for Conger. These creatures are much disliked by the crabbers, as they enter the store-pots by squeezing between the bars, and when the fisherman comes to haul his pot, he finds, instead of Crabs and Lobsters, nothing but shells left behind.

In Southern Italy, the Octopus is largely used as an article of food, the long tentacles being cut transversely, and,

when served at table, have the appearance of rings. They are lured in the daytime with a piece of red flannel tied to the end of a bamboo, and are speared with a trident upon their attempting to grasp it. An iron cradle, containing a fire of resinous wood, is placed in the bow of the boat at night-time to attract the Octopus to its destruction. Lately, however, this ancient and picturesque custom has been entirely superseded by acetylene gas, which sheds a much stronger light upon the water. Enormous catches are thus made, and this method might well be adopted by fishermen in the West of England as a means of lessening their numbers.

Mussels.

These shell-fish form the universal bait for Cod, Haddock, Whiting, Bream, Pout, and many other fish, and they are

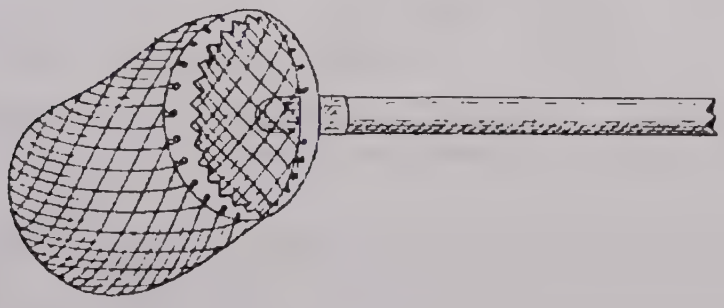


Fig. 40. Rake for obtaining Mussels, with strong net laced to the outer edge of iron hoop.

found clinging in bunches to rocks or piers. Fig. 40 represents an instrument for removing Mussels from the rocks or the side of a pier when the tide is too high to enable one to reach them. It is a kind of semi-circular rake, made of hoop-iron, having sharp teeth round the outer edge, and fitted as here shown to a long handle. It should be about 8in. in diameter, and have a strong net laced to the lower

edge. This is lowered to the spot where the Mussels are adhering, and drawn upwards, the shell-fish, as they are scraped from their position, falling into the net. In France, where Mussels form a standing dish in the restaurants, this instrument is greatly used, but, apparently, is little known at our seaside places. Alongside a pier, bait could thus be obtained at any condition of the tide.

Fig. 41 shows the proper method of opening a Mussel. Having scraped off the hairy appendage, or "byssus," insert the blade of the knife at the broad part. Grasping the Mussel firmly in the left hand, bring the knife round,

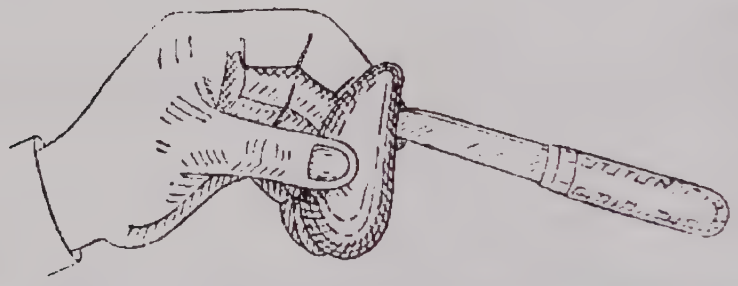


Fig. 41. Method of Opening a Mussel, showing how blade of knife should be inserted.

but do not attempt any leverage until the tough gristle holding the thin edges together has been severed. For this operation a strong clasp-knife, or, better still, a table-knife the blade of which has been worn down to a short stump, is useful. When opened, pass the knife beneath the two halves, and collect the fish into one shell. To bait the hook, pass it first through the narrow whitish gristle, bring it between the soft parts, and finally insert the point in the small leathery tongue. The latter is properly the foot of the Mussel, though it resembles a tongue in shape. Some fishermen adopt exactly the reverse of the above method in baiting the hook. A little practice is required to collect

this soft mass, and place it upon the hook so that it will not be dissipated at the first bite. Mussels should be opened before starting to fish, and placed upon a piece of board to harden. To render them tougher hot water is sometimes poured on them; or they may be slightly boiled. It is dangerous to eat Mussels which grow near copper, or in proximity to drains, persons having been poisoned by indulging too freely. In Italy these shell-fish attain a large size, measuring sometimes 1ft. in length. A Rag-worm is occasionally found amongst a bunch of Mussels. To preserve these shell-fish alive they should be placed in a bag of netting, and lowered overboard by a line.

Cockles.

These are also used largely for bait, being extremely plentiful in some places, but are more difficult to keep on the hook.

Rag-worms or Mud-worms.

These red and green worms, resembling centipedes, are most valuable bait, and all sea-fish will devour them greedily. Fig. 42 represents a fine specimen, the original of which measured over 6in. in length. They are called "Woolfrey" in Cornwall, and are found in the harbour mud or by digging under stones amongst rocks. In the latter case they are often difficult to reach, as they live close to the rock, and retreat at once into some crevice upon being disturbed. They are finer and tougher, however, than those found in mud. By raising large stones near the edge of the sea at low tide, a supply of fine rag-worms may often be obtained.

At Torquay, they are obtained from peat or rotten wood, of which the beach largely consists; whilst at Plymouth and Falmouth a supply can always be procured. For a few pence a boy will generally be only too willing to dig a

quantity of the worms, which should be kept in a shallow wooden box, with the seams pitched. A little sea-water should be added, and the box tilted so that the worms can crawl out of the water if they wish. Change the water every day, and discard any which are dead or injured. A few may be easily carried in a tin box or a can, a little wet sea-weed being placed among the worms to keep them alive.

Fig. 43 shows a useful implement for digging in the mud or sand; it is merely a garden fork, obtainable at any ironmonger's for a trifle, is easily carried to the scene of action, and is not liable to get broken. Larger worms would

Fig. 42. Rag-Worm: a capital bait for the rod fisherman.

Fig. 43. Hand-Fork for procuring Rag-worms.

probably be secured by means of a spade or an ordinary fork, which reaches to a greater depth. Spring tides are the best, and the finest are obtained when the water has just begun to flow, when the worms rise towards the surface of the mud.

White Sand-worm.

This is not unlike the rag-worm, and is obtained by digging in sandy beaches, especially near rocks. I have used it successfully for Pollack, Wrasse, and other fish from pier-heads.

The Varm, or Sea Tape-worm.

In appearance this resembles a large rag-worm, and is said to be an excellent bait for Bream, Whiting, &c. Being

very local in its distribution, it is not generally used, and appears to be unknown on the South-West coast.

Lug-worms.

On most beaches, composed of sand, numbers of the spiral casts or "coils" thrown up by these worms may be noticed. They form an excellent bait for many fish—Cod, Whiting, Plaice, and all bottom-feeders being especially fond of them. Commence to dig at a little distance from the cast, forming a kind of trench. Then with a rapid movement drive the spade beneath the place where you suppose the worm is concealed, throwing the sand out quickly. These worms are brown or green in colour, and often reach 1ft. in length, being as thick as one's finger. When handled they exude a yellow fluid, which is apt to stain the hands. Under stones among rocks they are often found in large numbers. Do not break this worm, but pass the hook two or three times through it. At many seaside places a supply of Lug-worms is always kept by the fishermen for the use of visitors, and the usual price is 1s. per 100. By placing them in a shallow box, filled with sand, they may be preserved alive for a day or so.

Prawns and Shrimps.

These are often used for rod-fishing, and a live Prawn is an excellent bait for Pollack. Flat-fish are also partial to Prawns, and when baited alive, the hook should be passed once through the tail. They should be carried in a bait-can, partly filled with sea-water, the interior of which is removable, and constructed of perforated zinc. These bait-cans can be procured from any good tackle-maker. Unboiled Prawns and Shrimps are better than those which have been cooked.

Spider Crab.

This is a common species of Crab taken by fishermen in their nets and crab-pots. In shape it has some resemblance to a spider, and the claws are small and narrow. By grasping the legs, and wrenching off the lower part, some good bait is discovered, the red part in the head being most esteemed. Though not generally known, the legs and claws of this Crab form an excellent article of food when boiled, and in Guernsey the Spider Crab is by fishermen and others more esteemed than the other species. Great quantities of these crabs are taken in trammels, and the shell on the back is so sharp and rough that it quickly cuts the twine, sometimes damaging the nets almost beyond repair. They are generally thrown away or used as manure for the gardens. At Porthallow, a small village near the Manacles, the fishermen were reported to have landed quite 1,000 of these crabs in one day, one man alone taking 200 in his nets. Notwithstanding the numbers captured, they appear to be increasing off this coast.

Soft Crab.

This is an excellent bait for Bass, Flounders, and other fish. Soft Crabs are common green Crabs which have cast their shell, and are in the best condition for bait just before this operation. By raising large stones amongst seaweed they may generally be obtained, or by lowering a dip-net, baited with any kind of fish. They are taken in quantities by the round prawn-nets.

Hermit Crab.

This strange creature, having no proper dwelling-place, lives in a vacated shell, and usually occupies that of the Whelk. It resembles a miniature Cray-fish or a Lobster, but the tail part inside the shell is soft. This portion makes

a good bait for Cod, Haddock, and other fish. They are locally known as " Farmers " or Soldier-Crabs. A large rag-worm sometimes inhabits the same shell as this curious tenant.

Whelks.

Like the Hermit Crab, these are dredged in large numbers, and are also taken by trawlers. They are principally used as a bait for Cod, and it is necessary to break the shell with a hammer to remove the fish.

Limpets.

In the Shetland Isles these shell-fish are extensively used for small sea-fish, and are useful when better bait is scarce. The soft part is acceptable to Bream and Pout, whilst the tough lower portion is freely taken by Wrasse. Combined with a lug-worm it forms an excellent bait for Cod. They are found everywhere upon rocks, and can be easily removed with a strong knife, thrust quickly beneath the shell. But a better plan still is to give them a quick tap with a hammer.

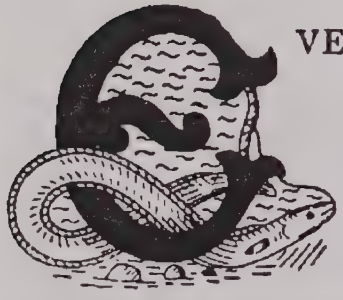
Earthworms.

A large lob-worm forms a useful whiffing bait for Pollack, and Grey Mullet will take them freely in brackish water. They are also occasionally used in baiting a spiller for flat-fish. In the evening they may be obtained by searching garden lawns and other places with the aid of a lantern, and should be kept in a tin or earthenware pot filled with damp moss. As the salt water quickly kills them, however, their general employment is not to be recommended.

Several other baits are occasionally used in special localities, but the above list includes all the principal kinds indigenous to our coasts.

Chapter VI.

ARTIFICIAL BAITS AND HOW TO MAKE THEM.



VERY sea-fisherman knows how difficult it is on many occasions to procure natural bait, especially in rough weather, and at these times artificial lures become extremely useful. They principally consist of spinners rigged up in various ways, often differing very slightly in construction, and are intended to represent Launce, Sprats, Herring, Fry, or "Brit," upon which such fish as Mackerel, Pollack, Coal-fish, Bass, and others largely subsist. The first attempt at making a spinner was a piece of bright tin, with a hole in it, attached above the hook, an arrangement which was locally known as a "shiner." This did not revolve when drawn through the water, and only of late years has the proper method of bending the metal been discovered. It should be noted that artificial baits are not suitable for ground-fishing at anchor, and only acquire their attractiveness from motion imparted to them, as in whiffing, railing, and other methods.

Rubber Eel.

Of all baits used in whiffing this is the deadliest, and is now employed successfully all round the coasts of Great

Britain. The fish principally caught by it are Pollack, Coalfish, and Bass, but others will occasionally take it. For Pollack there is no other lure which can compare with a good Rubber Eel, and in whiffing it will generally catch more fish than any kind of natural bait, as I have many times proved.

It is most important that it should revolve or spin quite easily in the water, and to obtain this motion the hook must be cranked as depicted in Fig. 44. At a point 1in. from the top of the ring the shank should be bent to an angle of about 140 degrees; thence it is straight for another inch, when it is again bent, a process which turns the point outwards and enables a better hold to be obtained on the mouth of a large fish. Rubber Eels are sold of different sizes, but a useful medium is obtained by using No. 6/o ringed Limerick hooks. These may be procured ready cranked from the nearest agent of Messrs. W. Bartleet and Sons, Abbey Mills, Redditch, and should be tinned or galvanised.

Fig. 44. Cranked Hook for artificial Rubber Eel.

The spinner, which must be made as lightly as possible, has a groove formed down the centre, at each end of which is soldered a small metal bead. It revolves upon a brass pin, having an eye at both ends, one of which is attached to the ring at the top of the hook, whilst the other is fastened to the eye of a swivel. The latter should be of German silver or brass, and No. 5 is a useful size for this purpose. Never use cast-steel swivels for sea-fishing, as they quickly rust and become worthless. Below the spinner and just above the eye a metal bead is soldered on to the pin, above which a glass bead is threaded on the wire. Of course, the top eye of the brass pin must not be formed till after the bead and spinner have been

strung upon the wire. Both the eyes of the pin should be soldered with a small blow-pipe or iron, the former being better. German silver wire would be better than brass for the pin, and No. 55 standard gauge is the proper size to use. The wire should be cut into pieces, each 2⅛in. long, according to the number of pins required to be made.

The best material for spinners is double-plated metal, *i.e.*, thin copper silver-plated on both sides; it may be obtained in the sheet from Mr. Ellis, Constitution Hill, Birmingham. The flat piece of metal for the spinner should be 1in. long

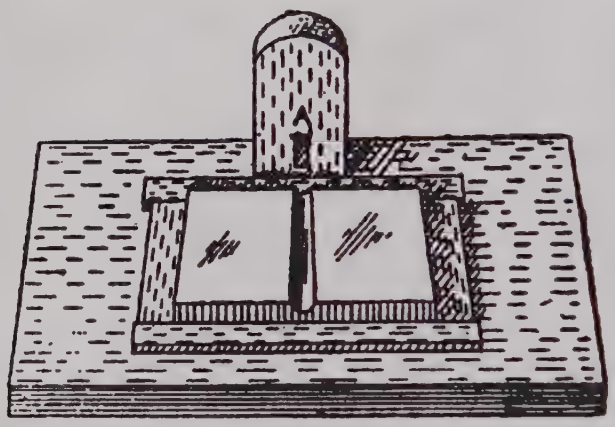


Fig. 45. Steel Block, fitted into small wooden stand, for Spinner-making. The point of a knitting-needle should be inserted through the hole A.

and ⅞in. across the widest part of the fins. Make a template of zinc in the desired shape, cutting out the exact size of the spinner in the centre with a fine metal fret-saw. Place this upon the metal, and with a steel point or a scriber mark round the inside edges of the pattern, afterwards cutting out the piece with a strong pair of old nail scissors. Flatten the piece carefully with a wooden mallet, and finish off the edges with a file.

To form the groove in the metal a small steel block, 2in. by 1⅛in. and ½in. thick, will be required, as shown in Fig. 45.

A small groove, ⅛in. in width and the same in depth, should be formed down the centre having the bottom rounded. The block is here shown fitted, for convenience, into a small wooden stand, which should measure 4¾in. by 3¼in., and can be made of any hard wood about ½in. thick. At the back is an upright piece, 1½in. in height, dovetailed into the stand, and having a hole or slot at A. Place a blank upon the block so that the centre is just over the groove, then insert the end of a knitting-needle at A and press it downwards upon the metal. The knitting-needle should be rather smaller than the groove, and fitted into a wooden handle. Remove the knitting-needle, place another small flat block of smooth steel upon the metal, and give a couple of sharp blows with a hammer. After soldering on a couple of metal beads, one at each end of the groove, the spinner will be completed. The best beads for this purpose are gilt ones, with facets; they are obtainable in strings from any fancy-work shop. To ensure ease of running the beads should be afterwards bored with a drill a size larger than the hole. Probably most amateurs will purchase them ready-made, but those who are fond of metal-work can make much better spinners by carrying out the above directions.

To preserve their brightness all spinners should be placed in a small box and dry arrowroot poured upon them until wanted. A little "Pynka" or Goddard's plate-powder may be used for polishing them.

Much difference of opinion exists as regards the best colour for the rubber tubing, but a yellowish-red shade appears to be the most enticing to Pollack. Black or grey is often used, the latter being very attractive to Bass. On the whole, however, I have found red eels to account for most fish. The rubber tubing should be ⅛in. across the opening, and an excellent quality may be obtained from the Britannia Rubber Co., 32, Cannon Street, London, E.C. Cut off a piece about

9in. long and make a pencil mark 6in. from each end. Commencing at one mark, cut through the middle of the rubber tube and bring the scissors out at the other mark on the opposite side. This method will result in two rubbers, one of which is shown in Fig. 46 before placing it upon the hook.

Fig. 46. One of the Rubbers cut ready for placing upon the hook of Artificial Eel.

Fig. 47. Rubber Eel complete, with spinner and swivel. Loop of gut collar is attached to the upper eye of swivel.

Spiral eels rigged upon a straight hook are often used, but are not so good as the cranked variety.

Fig. 47 represents a Rubber Eel ready fitted for fishing, before attaching it to the cast or trace. The rubber when adjusted upon the cranked hook should be tied at the neck above the lower eye of the pin with a turn or two of waxed red silk, to prevent its slipping down. These baits are

frequently used without a spinner, which renders their construction more simple; but in whiffing from boats the presence of the glittering metal must form an additional attraction.

A gentleman informs me that he sometimes coats the black rubber with metallic paint to make it silvery, and has taken a good many fish by this plan. The paint will wear off after a day or two, but may easily be renewed.

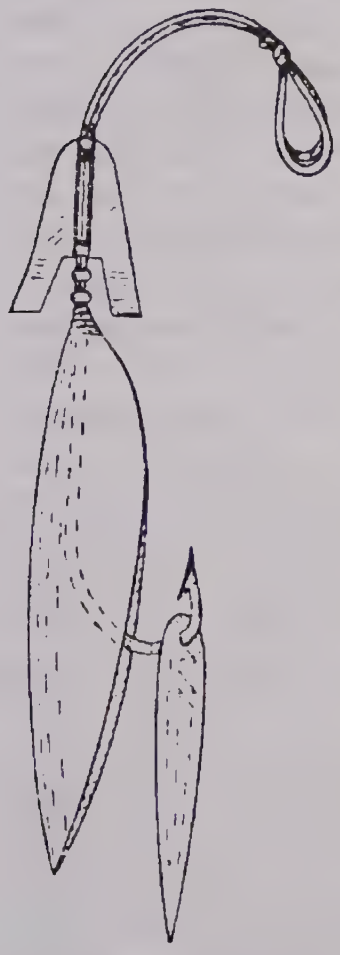


Fig. 48. Ray's-Skin Bait complete with spinner, the hook being whipped on to double or treble gut, having a large loop for attaching the collar.

Ray's-Skin Bait.

Although this bait is little known it is really a first-class lure for whiffing, and forms an excellent contrast to the rubber eel when using two lines. As seen in Fig. 48, which shows the complete bait, the spinner revolves upon the gut; this may be double or treble, according to circumstances. First make a loop at the end of the gut, then thread on the spinner and a couple of glass beads. Having done this, securely whip the gut on to a Dublin Limerick hook, No. 6/o or 8/o. A ringed hook may be used, and the spinner may be rigged upon wire in the same manner as the Rubber Eel.

I am inclined to think, however, that it is deadlier when spinning upon gut, although it is liable to fray after a time. Upon the back of the hook a piece of Ray's skin is placed and firmly secured at the head by a short whipping of waxed silk. Procure

the white under-skin of a large Thornback from a trawler or a net fisherman, and having placed it upon a board scrape off with a blunt knife all remaining particles of flesh. The skinning process had better be left to the fisherman, as it is rather dirty and troublesome. To skin a Ray, remove a small portion with a sharp knife and grasp it with an old cloth in the left hand. This affords a firm hold, and by its means the whole skin can be readily stripped off. Meanwhile, hold the fish firmly with the right hand, making with a knife a hole, or an incision, to enable the fingers to obtain a firm grip. Leave it upon the board in the open air with the flesh side upwards, and when dry it will have attained the consistency of horn. Now make a template in zinc of the shape shown in Fig. 49, and having placed it upon the skin cut out your baits accordingly with a pair of scissors. The pattern should be marked out before cutting with a pencil or a scriber. Several sizes will be needed, varying from 5in. by 1½in. as the largest, down to 2in. by ¾in. wide as the smallest, according to the size of hook. Sole's skin, or any other white fish skin, may be used, but Thornback is best on account of its peculiar whiteness. In folding the bait in half to cover the hook be careful that the rough, or flesh, side is outermost, otherwise it will not retain its original shape. A tag of the same skin on the point of the hook completes the bait. Instead of the tail it is often advisable to substitute a long "sneed," of Mackerel or Long-nose, the latter being much the better when procurable. In one day's fishing off the Cornish coast I took, amongst other fish, three large Pollack, which scaled 15lb., 13½lb., and 12½lb. respectively. They all fell victims to this bait, combined with a Mackerel "sneed,"

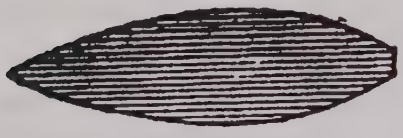


Fig. 49. Template in zinc for cutting Ray's Skin for Baits.

8in. or 9in. in length, on the point of the hook. A dead Sand-eel, hooked through the eyes, is sometimes a useful bait, as is also a piece of Pilchard or Herring; but the latter are rather soft to keep on the hook. The Ray's skin should be obtained fresh every season, as it soon dries up, and when wetted does not resume its chalky-white appearance. A piece of pork or bacon rind is another useful change for the tag of skin, or the white portion from the belly of the Bass. By using chiefly the two baits already described I took, in 1879, off the coast of Cornwall, 725lb. weight of Pollack and Bass in six consecutive days' fishing.

Baby Spinner.

For Mackerel, small Pollack, Bass, &c., this is an excellent bait, and is illustrated in Chapter IX., Fig. 71. It is really only a smaller edition of the Ray's skin bait, and is fitted up after the same manner. A Limerick hook, No. 1½ or 2/0, should be used, which is whipped on with well-waxed red silk to single gut. If the fish are liable to exceed 2lb. in weight, by all means use double gut, as the action of the spinner tends to weaken it. For this bait the spinner is made slightly smaller, and has no groove down the centre. In place of the piece of Ray's skin upon the point of the hook a narrow slice from the tail of a Mackerel may be affixed. A couple of large rag-worms, hooked on by the heads, also form a deadly combination in whiffing for Pollack.

"Sarcelle" Bait.

This simply consists of two red indiarubber rings which, after being cut, are attached to a Limerick hook, as shown in Fig. 50, one being whipped on to the top of the shank and the other hooked on to the point. When drawn along

they imitate closely two wriggling worms, and prove very enticing to small Pollack. This bait does not, however, in practice take as many fish as one might expect. It is often rigged upon two hooks, one above the other; also upon triangles with a small spinner at the head of the bait.

Fig. 50. "Barcelle" Bait, composed of two rubber rings cut, one lashed to the shank and the other hooked on to the point.

Fly Spinner.

For Mackerel and other fish this is a useful little bait, and consists of a white fly dressed with red wool, above which is a small spinner running upon gimp. Instead of gimp, which is unreliable, it might easily be rigged upon gut or fine wire. Most tackle-makers stock this bait, and it may be put overboard without any addition, though a slice of Mackerel improves it.

Mackerel Spinner.

Fig. 51 represents a bait extensively used for Mackerel in the West of England. The centre of the spinner, through which the wire passes, consists of solid tubing, and is consequently very durable. Upon o
triangle it is usual to place a s

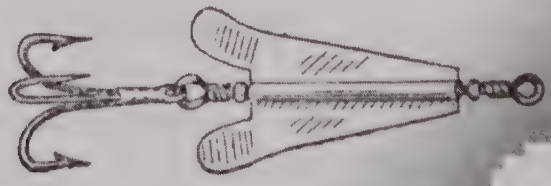


Fig. 51. Mackerel Spinner with triang

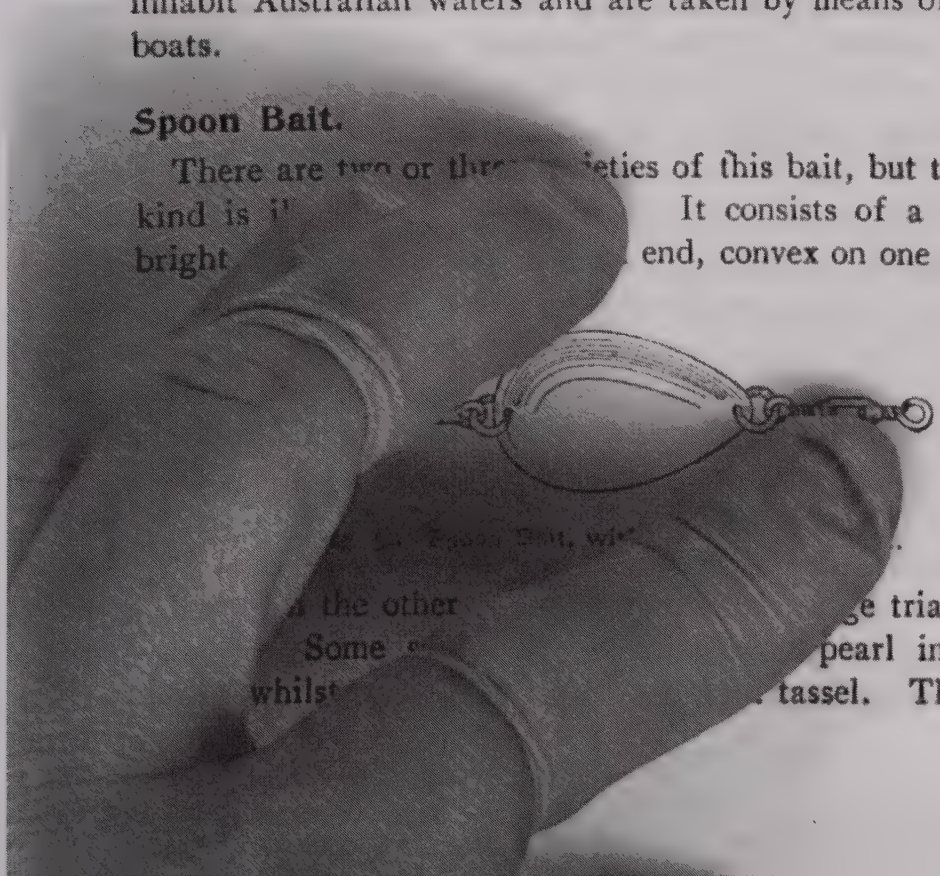
Mackerel, but it is often used without this attraction. In place of the triangle this spinner is furnished with a single hook, which avoids waste of time in unhooking. When fishing for Mackerel a single hook is, perhaps, preferable to the triangle, though the latter affords rather a firmer hold on the fish. Triangles may now be procured having a small clip by which they are quickly attached to the eye below the spinner.

"Clipper" Spinner.

This bait consists of a metal spinner, shaped like a fish and mounted upon gimp, at the end of which is a large triangle furnished with a tassel. It is much used for Pike and Perch, and would doubtless prove killing in the sea for Bass or Pollack. The "Cartman" spinner, another bait for Pike, resembles it very closely. If a piece of red rag were substituted for the tassel, these baits would be very attractive to the Sea-Pike and Barracouta, large fish which inhabit Australian waters and are taken by means of sailing boats.

Spoon Bait.

There are two or thr eties of this bait, but the usual kind is i It consists of a piece of bright end, convex on one side and



the other e triangle and Some pearl instead of whilst tassel. This is the

most killing bait for the enormous Mahseer, found in Indian rivers, and will often attract Bass or other large sea-fish.

Besides those above mentioned, there are numbers of other baits sold by tackle-makers, many of them consisting of minnows rigged up with triangles, with all of which some sport may be obtained. A gentleman informs me that he has taken a good many Bass with a Devon minnow while fishing off Seaton. The fewer hooks, however, the better, as with some of the contrivances sold for sea-fishing it would take about a week to extract the various triangles from the mouth of the victim.

Artificial Flies.

Unfortunately there are no natural flies worthy of the name to be found on the sea, though a butterfly may occasionally stray across the waves and be snapped up by a fish. Pollack will also rise on rare occasions at the small flies which are seen upon decaying seaweed near the shore. These are, however, only rare instances, and there is no doubt that sea-fish take flies for small fry, to which they bear a strong resemblance when wetted. For Pollack I have found a black fly very killing. The body should be composed of black worsted ribbed with silver tinsel, and the white wings should be taken from the goose or sea-gull. The feathers of a gannet provide excellent material for the wings, and as a variation they may be stained green with Judson's dye. Most of the flies sold by seaside tackle-makers have white feathers for the wings, with bodies of different colours ribbed with gold or silver tinsel.

Fig. 53 represents a fly of this kind, at the tail of which is attached two or three strands of peacock's herl to form a tag. After whipping on the gut to a No. 1 or 1½ Limerick hook, attach securely the peacock's herl for the tag, and also the worsted and tinsel for the body. Bring the silk up

nearly to the end of the shank and fasten it with two half-hitches. Now wind the worsted on so as to form rather a plump body, and fasten it off with the silk. Lastly, the tinsel must be wrapped in spiral form over the worsted, leaving a gap between each turn, and firmly secured by the silk. For the wings the tips of the feathers are the best, and should be securely fastened to the shank with the same end of silk. Cut off the end and apply a little shellac varnish to the head of the fly, allowing it to harden before use. The body may be composed entirely of silver tinsel, of which real silver maintains its brightness the longer of the two.

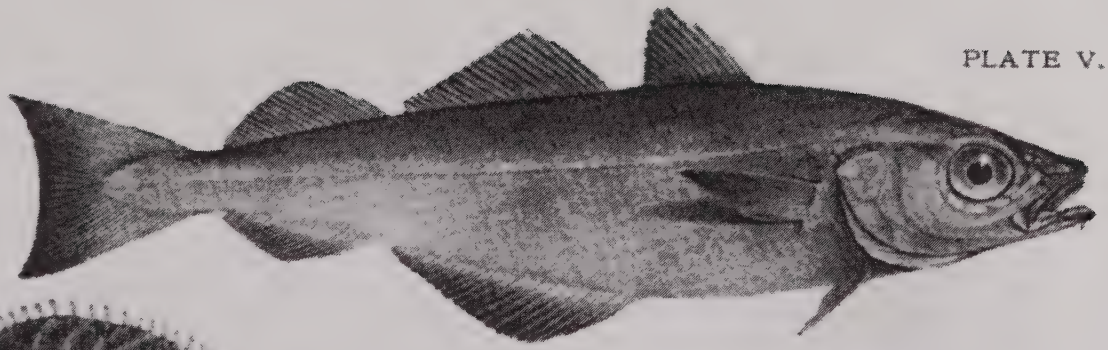
Fig. 53. Sea-Fly and portion of Gut for attaching to cast.

A couple of these flies fastened to the trace about 18in. apart, with a baby-spinner at the end, forms an excellent arrangement for whiffing. Although fish generally take the end bait, they often show a fancy for the flies which, at any rate, lend attractiveness to the gear.

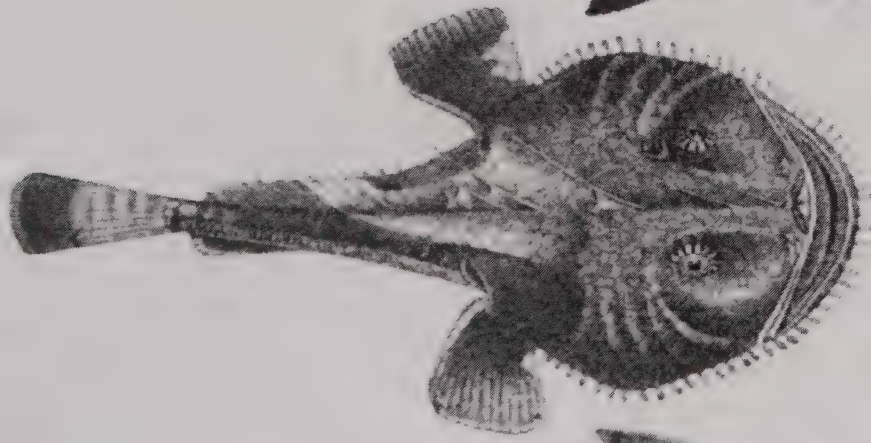
For Bass a Sole's skin fly often proves killing, and merely consists of a piece of this skin lashed to the back of the hook after the manner of the Ray's skin bait (see Fig. 48). A friend informs me that he was successful in taking Bass with this fly when shoaling upon the surface. He sewed together the two edges beneath the hook and painted the upper part a dark colour to represent a fish. The tail portion being

open the water entered and expanded the middle, which was sewn up, imparting a very life-like appearance. Used with a rod provided with rather a pliant top, this fly might often be worked with advantage.

Old sea-trout, or salmon flies, especially if they are dressed with silver tinsel, will prove useful for Pollack, Bass, Mackerel, &c., either from boats or from rocks and piers.



COAL FISH (Gadus virens). An active species approximating in appearance to the Pollack.



ANGLER (Lophius piscatorius). A curious fish, and remarkable for its long filaments, which are used as a rod and line for the purpose of attracting prey, the "Angler" meanwhile being partly buried in the sand.

BASS, or SEA PERCH (Labrax lupus). A very sporting fish, much sought after by the rod-fisherman; it weighs from 3lb. to 12lb.

(Reduced from Plates in Day's "British Fishes," by kind permission of the Publisher.)

Chapter VII.

SEA-FISH: THEIR HABITS AND METHODS OF CAPTURE.

S so much ignorance exists concerning the usual sea-fish found around our coasts, a brief mention of the commoner species, together with the best methods of capturing them, will doubtless prove interesting. It will be impossible, of course, to give a complete history of the different kinds, and those desirous of further information should consult a standard work upon British fishes, such as those by Day, Couch, or Yarrell. The best kind of coast to select for sea-fishing is that which consists of bold headlands, around which there is a strong run of tide, and deep water close up to the rocks. All kinds of fish will here find a livelihood, and some will be taken at any time of tide.

The sandy bays between the headlands will be the resort for Flat-Fish, Gurnards, Bass, and Mackerel; whilst in deeper water will be found Pollack, Cod, Congers, Bream, Whiting, and many others.

Angler.

Though rarely taken by hook or line, this fish is most interesting from the naturalist's point of view. Its large

head is furnished with long filaments, which when kept in motion attract other fish. These appendages have a fancied resemblance to a rod and line, to which is attached a kind of bait. In order to attract the small fry the fish partially buries itself in the sand and leaves the line dangling near its capacious mouth. If any fish approach too closely it is immediately snapped up and devoured by this natural angler. Specimens of this fish, weighing up to 50lb., are taken in trawl or trammel nets. Locally these fish are known as Fishing-frogs or Monks, the latter name being also applied to the Angel-fish, which is a species of Ray. The name of Fishing-frog is in allusion to their tadpole-like form. (Plate V.)

Bass, or Sea-Perch.

On account of its sporting qualities this fish is more sought after by the rod-fisherman than any other, but it is often extremely difficult to catch. It displays a great fondness for fresh water, and is therefore found in numbers near the estuaries of rivers. Wherever a small stream finds its way into the sea is always a good locality to try. The larger Bass, weighing from 8lb. to 12lb., which frequent harbours and landing-stages, usually feed close to the bottom, but the smaller ones, known as "scull" Bass, are found nearer the surface. At the Manacles I have seen acres of Bass, looking like grey shadows beneath the surface, but they could not be induced to look at any kind of bait. Near the Mewstone Rock, off Dartmouth, large shoals may often be observed. In cases like these it is a good plan to row to windward of the shoal, and using a long salmon rod to cast a light line with white Sole's skin fly attached, allowing it to drift amongst the fish.

The principal methods of taking Bass are by whiffing, drift-line fishing, spillering, or in nets. Large specimens

are frequently taken by the rod-fisherman from rocks and piers, using a rubber eel or piece of Pilchard as bait, the best sport being obtained in rough weather.

On a sandy beach it is often a good plan to wade into the surf and cast in the bait, consisting of a dead Sand-eel, allowing it to rest upon the bottom. When the tide has commenced to rise a fish will often seize the bait and make off with it, when it must be played with the rod. Always allow plenty of slack line to enable the fish to swallow the bait. If there are any rocks near, care must be taken that the fish does not take the line around them.

In Cornwall the fishermen use a long pole, or bamboo, with a strong line devoid of gut or running tackle, to which is attached a large cod-hook baited with soft Crab. They sit down holding the pole between their legs, and when a bite is felt the fish, of whatever weight, is hoisted up and landed upon the rocks. A Bass, reported to have weighed 17lb., was thus taken from the small pier at a Cornish village near the Lizard. It had been observed for some days near the jetty, and was at last captured with a whole Pilchard and a line composed of whipcord. Owing to its size, however, it had to be landed by means of a boat. In the "Western Morning News" of July 22nd, 1902, appeared the account of a Bass caught by a fisherman of Saltash in a stop-net which weighed, according to the paper, 22½lb. All round the coasts of Devonshire and Cornwall good Bass fishing may be obtained in the summer and autumn.

The best natural baits are Pilchard, soft Crab, Squid, rag-worms, and live or dead Sand-eels, whilst the rubber eel and other spinning baits form excellent attractions. Round-bent or Limerick hooks, Nos. 4/0 to 6/0, should be used. (Plate V.)

Bream.

There are several varieties of this fish, but the common Sea-Bream is the one usually met with, and inhabits rocky localities. It is red in colour and possesses extremely sharp fins, so that care must be taken in removing the hook. Bream-fishing means really hard work, consisting as it does of hauling some twenty fathoms of line, with one, or perhaps two lusty fellows pulling hard at the end of it. These fish feed best towards evening, and are taken upon ordinary ground-fishing gear with fine snoods, or gut paternosters.

Pieces of Pilchard, Herring, or Mackerel are generally used, but Bream also freely accept Mussels, lugs, and rag-worms. Having plumbed the bottom, raise the line so that the baits are just lifted from the ground. Bream usually average 2lb. to 3lb. in weight, but one scaling 9¾lb. was recorded in the "Field" of October 24th, 1903, as having been caught at Bridlington. A useful size of hook is No. 3/0 round bend. The Schnapper is a magnificent fish, resembling a large Bream, and is found plentifully off the Australian coast. Its colour is light red, and it bears on its head a curious bony protuberance by which it can be immediately recognised. In Sydney parties of gentlemen are formed who hire a small steamer and proceed outside the harbour for the sole purpose of fishing for these monsters, which frequently attain a weight of 40lb. or 50lb. The flesh, although rather soft, is much esteemed as an article the size of the fish. (Plate V.)

Brill.

Being usually captured by trawl or trammel-nets this fish does not greatly interest the amateur. It closely resembles the Turbot, for which it is often mistaken. Its form, however, is not so rounded, and it lacks the roughness of back

characteristic of the latter fish. The flesh is soft and much inferior, for which reason it is sometimes called a "Work-house Turbot." It is occasionally caught on spillers or trots set upon sandy ground.

Chad.

Chads, or young Bream, abound in many harbours, and towards evening they may be taken in large numbers from boats anchored not far from the shore. Fine hand-lines should be used, provided with two round-bent or Limerick hooks (sizes Nos. 3 or 4) fastened to single gut. Rag-worms or Mussels form excellent bait, but a small piece of Chad, being tough, is as good as anything. When biting freely these fish approach quite close to the surface.

Coal-Fish.

This is an active fish much resembling the Pollack, but may be differentiated by its stouter proportions and the white stripe down its side. In Cornwall it is called the "Ravening," or "Rauning" Pollack, and near the Land's End large specimens, weighing frequently over 20lb., are taken from sailing boats, bell-wire being used as snooding for hauling them in. When caught they are usually cut up and used for baiting Crab-pots, the flesh being inferior as food. While whiffing, a near relative of the writer's, fishing with Ray's-skin bait, captured a specimen that scaled 17½lb. I have several times taken it upon the red rubber eel when fishing for Pollack, which it resembles in its habits. About Scarborough and that coast it is very plentiful, and is called by various names, such as Parr, Billet, and Black Jack. From the pier at this bracing resort great numbers are often captured. At Whitby they are known as "Pennuck," and at Filey Brigg very fine specimens are caught from the rocks, the fishermen using a long salmon-rod and a white fly as bait. Limerick hooks, Nos. 1 to 6/0, should be used according to the size of the fish. (Plate V.)

Cod.

Every reader is probably well acquainted with this fish, the pursuit of which provides a useful as well as a remunerative calling to numbers of our sturdy fishermen. One of the largest fisheries is carried on in the North Sea, but great quantities are also caught off Newfoundland and Labrador, the fishermen in the latter place taking them by means of "trap-nets." In the North Sea very strong hand-lines are used, the end of which is attached to a heavy lead of 5lb. or more in weight, having a hole near the top. Lower down is another hole through which revolves a piece of stout iron

Fig. 54. "West Country Whipping" for Cod or Conger Hook, the snood being attached by tying a single overhand knot above and below, finishing off with a reef knot.

wire, bent into the form of a bow about 2ft. across. The boom is passed through so that the lead hangs from the middle, a position which is maintained by a lashing on each side. To each extremity of the curved boom strong snoods, each about 6ft. in length, are attached, terminating with large hooks fastened securely to stout plaited twine.

Fig. 54 shows an excellent method of attaching a large hook to a plaited or double snood for Cod, Conger, or other heavy fish, which is known as "West Country Whipping." Take a piece of well-waxed sailmaker's twine, double it, and tie a single knot at the end of the shank. Bring the two ends downwards, and make another overhand knot. Continue this process of tying a knot alternately above and

beneath as far as desired, finishing off with a reef knot. Sometimes the snood is protected by wire for a short distance. Hooks should be of the largest size to provide for a secure hold upon the mouth of this fish. Different kinds of rig will be used according to the locality, and in many places the boat-shaped gear is in favour. As Cod-fishing is generally carried on during the winter months, when these fish attain their best condition, it does not always come within the scope of the amateur. On the East coast, however, large numbers of Cod are taken from the shore, and from the piers at Gorleston, Yarmouth, Scarborough, and at other places good catches are often made.

Long-lining is another professional method extensively employed for taking Cod, the baits principally used being Whelks or Sand-launce. Formerly hand-lining was largely carried on in the North Sea, the fishing smacks being hove-to and allowed to drift over the ground; but now trawling has almost entirely superseded the old method. One of the favourite grounds is the Dogger Bank, an extensive shoal situated off Whitby. In Cornwall, Cod are often taken at night baiting with Cuttle, from small boats anchored upon well-known "marks," and information concerning them should be obtained from the fishermen.

Pieces of fresh Pilchard, Herring, or Cuttle are good baits for Cod; but Mussels or lug-worms are sometimes preferred. The "Queen," a kind of Escallop, is also used when other bait is scarce. Being essentially a bottom-feeder, their food principally consists of small Crabs. It is always interesting to open a large specimen and examine the contents of the stomach, many curious things being found therein. Naturalists often purchase the inside of the Cod for this purpose. Small fish, ranging in weight from about 5lb. downwards, are known as Codling. For these, hand-lines or paternosters,

fitted up as for Whiting or Bream-fishing, will be quite suitable, and the baits should be just clear of the bottom.

Conger.

This huge Eel is one of the most difficult fish to handle on account of its powerful jaws and great strength. It inhabits rocky localities, and although small Congers will be taken in the daytime the larger fish are almost invariably caught at night, when they roam about in search of food. A good locality for ground-fish of various kinds will generally be productive of Congers at night, provided that the boat is anchored over rocks. Small Congers are locally known as "Whips," or "Strops," terms applied to any fish under 8lb. or 9lb. in weight. There appear to be two varieties of this fish, which the fishermen call white and black Congers. The former are taken in deep water, whilst the latter are found nearer the coast. Besides being captured on hand-lines at night great numbers are taken on bulters, both methods being largely adopted by professional fishermen. The Brixham trawlers often catch fine specimens in their nets, Congers of 50lb. or 60lb. in weight being not uncommon. Occasionally they are taken in Crab-pots, but generally manage to make good their escape after eating up all the bait.

Strong hand-lines should be used for Congering, fitted with the boat-shaped gear, and about 1½ fathoms of snood below the lead (Fig. 18). A swivel of the largest size must always be inserted, and should be attached by being spliced into the sid-strap near the lower end. The hooks should be of the round-bend pattern, and should measure about 1½in. across from the point to the outside of the shank. For Congers they are best untinned, and to prevent their rusting grease them well, and then wrap them up until required in an old worsted stocking.

A Conger snood is prepared as follows:—Take three

pieces of stout hemp or flax twine, and attach the ends to a hook or other fixture. Lay up with the fingers about 8in., at which point pass a turn or two of whipping, and plait the remainder, making the snood altogether about 18in. in length. To form the loop interweave the ends with the main part, or whip the two parts securely with waxed thread. When finished attach the ends firmly to the shank of the hook by means of "West Country whipping" shown at Fig. 54. Then wrap fine copper or brass wire evenly around the snood

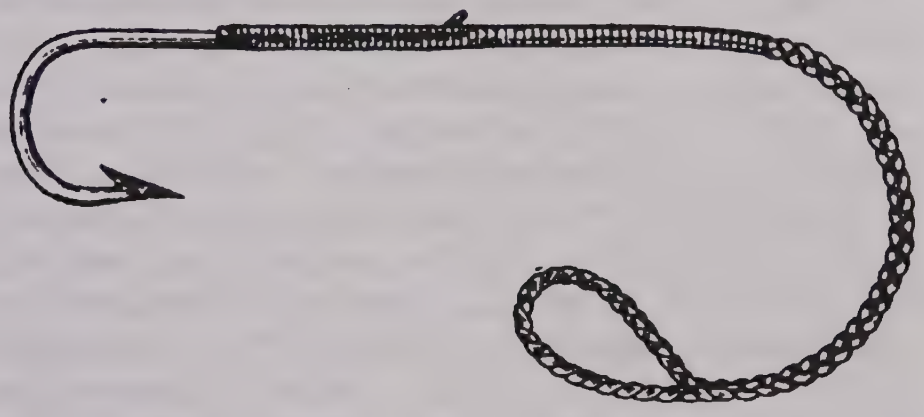


Fig. 55. Conger Hook and Snood, formed of three strands of stout twine plaited together, and protected by fine copper wire evenly wrapped upon it.

for a distance of about 7in. from the hook, which, when completed, will have the appearance of Fig. 55. A single hook on each line is the best for Congering.

Another plan is to take a piece of line, and having doubled it, to whip the two ends upon the shank. Over this green hemp should be plaited, and finished off by passing the ends through the double line. The soft material above the hook prevents the Conger from biting it through, thus dispensing with the wire. Fishermen usually fasten a piece of line around the waist, to which they attach the hook, the loop at the end of the snood being passed over a hook or other fixture. By bending backwards the snood becomes rigid and

leaves both hands free for coiling on the wire, which is carried, for convenience, upon a small reel. The quickest method, however, is to run it on by means of the lathe.

The best bait for Conger-fishing is Squid or Cuttle, with a piece of Pilchard to make it tasty, the latter being rather soft by itself. Long-nose, Mackerel, or Sand-eels are also excellent. All bait should be absolutely fresh.

Dab.

In muddy or sandy harbours and bays this flat-fish is often numerous, but it does not attain a large size. It is light-brown on the back and transparent white underneath. The usual method of fishing is to anchor, using light hand-lines or paternoster gear baited with Mussels or rag-worms. They are also taken by throw-out lines from the shore. Mussels are the best bait, but Dabs will also take pieces of fresh fish, such as Mackerel or Herring. This fish is in best condition during the spring months, but may be taken all through the summer. Use Nos. 3 or 4 hooks, attached to fine snoods or single gut, and allow the bait to rest upon the bottom. The best time to fish is during the flood-tide.

Dog-Fish.

These marauders, resembling small sharks, are exceedingly troublesome while ground-fishing, and until recently have been considered of little value as food. There are several varieties, of which the "Spotted Dog" is probably the commonest. They pull strongly, and require fairly strong gear to land them. A piece of this fish taken from the middle and cut right through is sometimes used for scrubbing the deck, for which the roughness of the outside skin renders it suitable. Whilst in pursuit of Pilchards and Herrings large numbers of Dog-fish become meshed in drift-nets, to which they do much damage, and over 400 have been caught

at a single haul. A whole load of these fish scarcely realises more than 10s., and they are usually taken to the manure works. A good many, however, find their way to fried fish-shops, whilst not a few are sold to unsuspicious customers as Congers, or "Dutch Eels," after they have been trimmed by cutting off the heads and fins.

Since writing the above, inquiries have been held at Porthleven, St. Ives, and other places in Cornwall, with regard to the depredations of Dog-fish, eliciting the fact that the fishermen sustain serious losses through their unwelcome presence. In some cases these fish appeared in such numbers as to prevent the men from shooting their nets; whilst, on other occasions, they had hauled them in and found them full of "Dogs." It was calculated that during the past three years St. Ives alone had sustained a loss of £15,000 through these pests, and in some instances nets were entirely destroyed by them. The most destructive species is the Spur or Picked Dog-fish, so called from its being armed with a sharp spine or spur, which is situated close to each dorsal fin. These fish are now recognised to be a useful article of food, and when skinned and boiled for about ten minutes longer than Mackerel, are considered by some to be little inferior to Whiting. This discovery should cause them to become more salable, and if a remunerative price can be obtained, the fishermen will soon find a way of decreasing their numbers, either by hand-lining or using strong nets which cannot easily be destroyed. (Plate VII.)

Dory.

From its quaint appearance this fish is immediately recognised, and is popularly known as the "John Dory." On each side is a round dark spot, supposed to have been caused by St. Peter's fingers whilst grasping it to take the tribute-money from its mouth. This popular superstition is shared by the

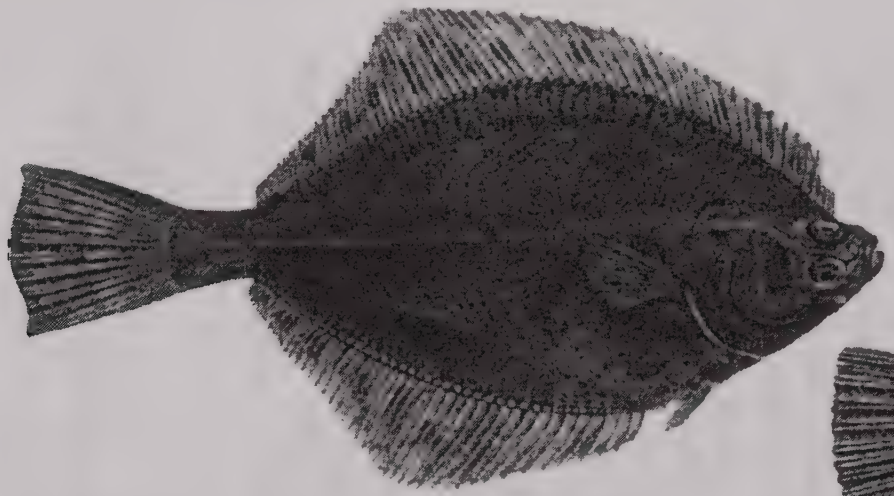
Haddock, a fish also possessing two dark spots on its shoulders. Although the Dory is flat in shape it swims vertically in the water, and its food consists of small fish. It is sometimes taken when whiffing with spinning baits upon rocky ground, and will occasionally seize a small fish which is being drawn up by the line. A landing-net should be placed under this fish to prevent its dropping off the hook, its large and horny mouth providing an insecure hold. Numbers are taken in trammel or trawl-nets, and they rank as best fish, the flesh being firm and of excellent quality. A good bait is a whole Chad, hooked by the tail, the sharp fins preventing the Dory from ejecting it readily. (Plate VI.)

Flounder.

This fish much resembles the Dab, but is slenderer in form, especially towards the tail. It is commonly known as the " Fluke " or " Butt " on the Yarmouth coast. The same tackle can be used as for Dab-fishing, and the best baits are soft Crab, lugs, or mud-worms. The Flounder has a particular liking for fresh water, and is found plentifully in estuaries or in brackish pools connecting with the sea. In the latter place, while fishing for Grey Mullet, I have taken a good number of them, my tackle consisting of a single gut cast, light float, and No. 8 " Pennell " hook baited with rag-worms. Allow the bait to remain close to or rest upon the bottom. These fish are often speared at the mouths of rivers with an instrument called the " fluking-pick," which has two or more prongs slightly notched or jagged at the sides. When fried, Flounders are excellent eating. (Plate VI.)

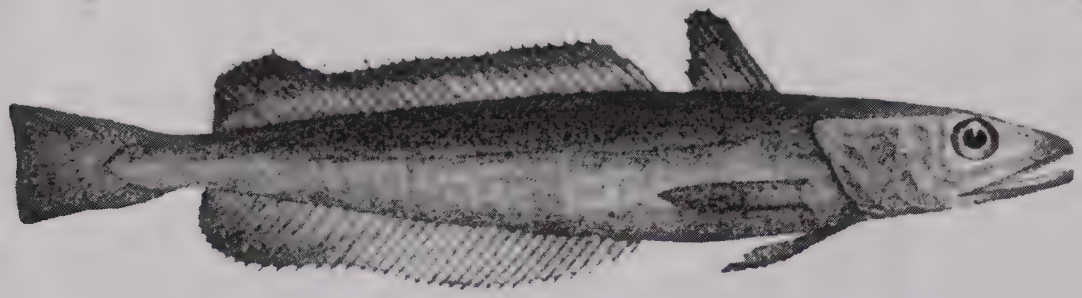
Fresh-water Eel.

Although generally inhabiting rivers or streams this fish migrates to the sea, and is taken in harbours at some distance from any fresh water. Small Congers are often wrongly



FLOUNDER (Pleuronectes flesus). Sometimes known as Fluke or Butt. An abundant fish in estuaries.

JOHN DORY (Zeus Faber). Popularly the round dark spot is said to have been due to St. Peter's fingers grasping the fish for the purpose of taking the Tribute-money from its mouth.



HAKE (Merluccius vulgaris). This very voracious species follows in the wake of shoals of Pilchards and Herrings. Usually taken by hand-lines from drift-boats at night.

(Reduced from Plates in Day's "British Fishes," by kind permission of the Publisher.)

bring the loose skin over the top of the shank, tying it securely with waxed thread to prevent the bait from slipping. When drawn down again the skin forms a kind of bluish-white head to the bait, which is now of a uniform light colour. The hook should be No. 8/o, whipped on to double or treble gut, and Fig. 56 represents the completed bait. A stitch or two of thread on each side will keep the skin in position. If the Eel should be too large, use only the tail portion. These baits can be preserved for a day or two by sprinkling them with salt, and wrapping them up in a piece of old newspaper. This bait is used with success on some "marks" called The Bow, situated about four miles from the Lizard, and January is considered the best month for fishing it.

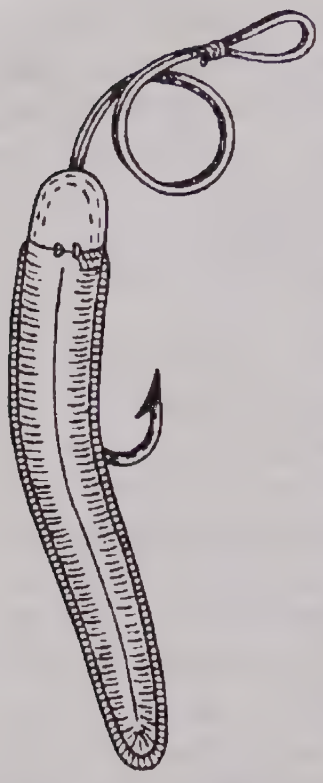
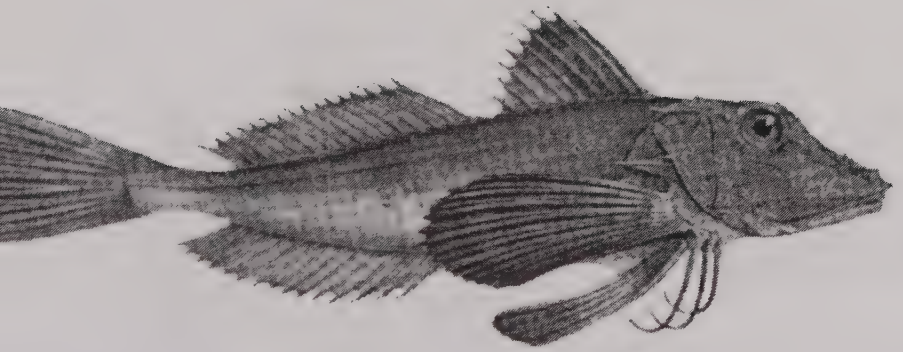


Fig. 56. Eel-Tail Bait for large Pollack, having loop for attaching to gut collar.

In canals Eels are taken with a spear having wide prongs with the edges slightly notched and fitted to a long pole. This instrument is thrust downwards into the muddy bottom, and again at right angles to the previous attempt so as to take the Eel transversely between the prongs. They are also captured in "putchins," or wicker-baskets with a funnel-shaped entrance at the end. Fishermen obtain a remunerative price for Eels when sent to market, as they command a ready sale in large towns.

Gurnard.

Like the Dory, this fish emits a sound resembling a grunt when lifted into the boat, whence it derives its name. The



URNARD (Trigla hirundo). A species that emits a grunt when captured. It weighs from 1lb. to 6lb., and has very sharp fins. The Sapphirine Gurnard is known as Tub or Tub-fish.

SEA BREAM (Pagellus centrodentus). A fairly abundant species in the vicinity of rocks. The average weight is 1lb. to 3lb. The fish possesses very sharp fins, necessitating careful handling.

G-FISH (Scyllium canicula). A Shark-like fish that is most destructive to fishermen's nets. At one time it was not used as an article of food, but of late years tastes have changed in this respect, and the species is regarded as little inferior to Whiting.

(Reduced from Plates in Day's "British Fishes," by kind permission of the Publisher.)

principal varieties are the Red and Grey, which are common all round our coasts, and usually frequent sandy ground. The Sapphirine is a larger species, reddish in colour; it is commonly designated "Tub" or "Tub-fish" in Cornwall, and attains a weight of 4lb. or 5lb. These fish are freely protected by sharp fins, and prick the hands severely without due care in unhooking. Perhaps the best way of holding the fish during this operation is to insert the finger and thumb in the lower part of the gills on each side.

Ordinary ground-lines as used for Bream or Whiting will be quite suitable, and the bait should consist of Pilchard, Herring, or Mackerel cut into pieces. In sandy bays numbers are often taken upon whiffing-baits, such as rubber eels or "sneeds," allowed to drag along near the bottom. Gurnards pull strongly, and afford excellent sport. (Plate VII.)

Haddock.

Like the Cod this fish is in season during the winter months, and great quantities find their way to our principal markets. It is taken principally by trawling and line-fishing off our Northern coasts. The familiar name in Scotland for this fish is the "Haddie," and numbers are cured at Finnan, a small Scottish village renowned for the production of the smoked delicacy so esteemed as a breakfast dish. It is often mistaken for the Whiting, but its flesh is firmer and its head is rather different in shape. Ordinary ground-fishing gear is used, either paternosters or hand-lines, fitted with hooks, Nos. 3/0 or 4/0, as for Bream or Whiting. The best baits are pieces of fresh fish, Mussels, or lug-worms.

Hake.

A most voracious fish that follows the shoals of Pilchards and Herrings to our coast. It is usually captured by drift-boats whilst anchored to their nets at night. A fisherman

once informed me that he and his crew caught 46 dozen one day and 43 dozen the next by means of hand-lines, and they could see the fish take the bait. The boat-shaped gear is the ordinary method, fitted with a small Conger hook, and the snood should be guarded by wire to protect it from the sharp teeth of these fish. Pilchard is the best bait, but Mackerel or Herring may be substituted. A piece about 1½in. thick, cut right through from the middle and fried, forms an excellent dish; it is known as "Hake-steak" in Cornwall (Plate VI.)

Halibut.

Of this flat-fish enormous specimens, weighing several hundredweight, are occasionally captured, but it is not often met with by the amateur. They are caught off Hartlepool, Staithes, Whitby, and other places, either by trawling or line-fishing, and in form resemble huge Flounders. Long-liners are sometimes compelled to cut the line when one of these monsters has taken the bait in order to save their gear. It principally inhabits our Northern Seas, but is not uncommon on the south-west coast. A Cornish fisherman told me that he caught one on a hand-line while ground-fishing that weighed 24lb., and could recall the capture of another scaling over 1cwt. The flesh is described as coarse.

Herring.

As an important article of food there are few fish that can compete with the Herring, while it provides a means of livelihood to thousands of hard-working fishermen. In Scotland, where it is extremely abundant, large numbers are smoked or salted, and the Yarmouth Bloater and Red Herring are delicacies well known to everybody. Our markets are principally supplied by the drift-boat fishery, a method of netting which is chiefly carried on during the autumn and winter

months, when this fish is in season. A fresh Herring, grilled and accompanied by fried onions, is a delicious dish, and the roes, which are the best part, should be left in the fish. It is sometimes caught in Ireland on a paternoster, to which bare tinned hooks are attached. This tackle is worked with a sinking and drawing motion, which is known by the unsportsmanlike name of "jigging," or "snatching," generally used when fish show no partiality for a bait.

The Twaite and Allice-Shad are large varieties of Herring often taken in the estuaries of rivers. In the Teme, below Hereford, the Twaite is frequently captured by rod-fishermen using artificial lures, which are lowered and then raised quickly to attract the fish. A gentleman was successful in taking them with a fly in the river Wye, as mentioned by a paragraph in the "Field." It was described as a large trout-fly, dressed with a silver body, black hackle, and starling wings, the tail being composed of two fibres of jungle cock. A few of the fish were also captured on a mallard spinner. A large kind of Herring is sometimes taken by Cornish fishermen in their nets, which are locally known as Leach, and they pronounce them to be the "poorest fish that swims."

Ling.

This large fish resembles the Cod, but it has a greater length proportionately. In Cornwall great numbers are brought in by boats engaged in bultering, or long-lining, in company with Cod, Congers, and other large fish. The Ling possesses sharp teeth capable of biting through ordinary snoods, and they should therefore be protected by wire. A friend of mine caught a Ling off the Scilly Isles scaling 40lb. which swallowed the hook twice after breaking the line at the first attempt. The baits are the same as for Cod or Congers.

Long-Nose or Gar-Fish.

In Cornwall this fish is called the "Gerrick," and is much esteemed as a bait for Pollack, Conger, and ground-fishing, possessing a strong and peculiar odour, which appears to be its chief attraction. It is furnished with a long bill, or snout, and when hooked rises to the surface shaking its head repeatedly in its efforts to escape. As it finds difficulty in swallowing an ordinary hook the plan shown in Fig. 57 of arranging the bait will be found excellent. Upon the point of the hook place a narrow slip of Mackerel, and attach a triangle by a short piece of gut so as to hang down alongside the bait as here depicted. If the fish succeeds in avoiding the larger hook it will almost certainly be caught by the triangle. This method is also good for Mackerel when they are biting shyly, and the spinner above the hook is not always a necessity.

Fig. 57. Bait for taking Long-Nose or Gar-fish, a small triangle being attached so as to hang close to the slice of Mackerel.

The Long-Nose has a disagreeable habit of winding the line about its body like an Eel, and should always be knocked on the head with a thowl-pin before unhooking. It is usually taken whiffing or drift-line fishing, using a spinner combined with a "sneed" or lask of Mackerel. Light floated tackle, with rag-worms as bait, is another good method, these fish being often found near the surface. Long-Nose have green bones, and the flesh is generally considered inferior on account of its strong flavour, but the Guernsey folks and the French esteem it very highly.

The Australian species of Gar-fish forms a most delicate article of diet, especially when fried for breakfast, and they are often taken from boats with fine hand-lines, using a slip of fresh fish as bait. They run smaller than the variety found in our waters, but are similar in form.

Mackerel.

An elegant and beautiful fish that visits our coast in large shoals, and affords excellent sport to all kinds of fishermen. Great quantities are taken in drift-nets and seines, but the amateur principally catches them by hook and line, employing the popular methods of whiffing, plummeting, and drift-line fishing, all of which will be fully discussed. This fish is in best condition for food during the spring months, and should be eaten when absolutely fresh. On account of its richness and oily nature it is apt to disagree with persons who indulge in it too freely. The Mackerel usually prefers sandy bays, but does not appear to be particular as regards locality, and is found in all waters.

In the autumn Mackerel feed on the bottom, and may be taken with ordinary ground-lines or paternosters from a boat at anchor. Off Plymouth large specimens are often caught when fishing for Chad and Whiting-pout. Limerick hooks, Nos. 1 or 1/0, should be used attached to fine snooding or single gut, and the best baits are half a Sand-launce or a piece of Pilchard.

The Scad, or Horse-Mackerel, affords some sport for the rod-fisher from a pier-head, but is rather an uncommon species. It lacks the beautiful markings of the Mackerel, and is altogether a less refined fish, the flesh being of a coarse character. It takes the same kind of baits as the Mackerel, and I have caught it with the rod, using a piece of Pilchard or Spider-crab.

The Tunny and Bonito are large varieties of the Mackerel

family that sometimes pay a visit to our coasts, but are rarely taken by hook and line. Off the coast of Cornwall they may be observed leaping out of the water whilst in pursuit of Pilchards or smaller fish, and the fishermen call them "Spanish Mackerel." In the Mediterranean the Tunny fishery is a most interesting one, these fish being entrapped in large stationary nets having different compartments, into which they enter of their own accord. When sufficient Tunnies have found their way into the "death chamber," as the last compartment of the net is called, this portion is raised by men in boats, who secure the fish by spearing or gaffing them. As the Tunny frequently weighs a hundredweight or more this part of the proceedings is a most exciting one. The flesh of the Tunny resembles raw beef in appearance, and when fresh or pickled forms an important article of food for all classes.

Mullet, Grey.

Like the Bass this fish is often found in the vicinity of fresh water, and ascends the estuaries of rivers in large numbers on the flowing tide. Owing to its inability to swallow any hard substance it is a difficult fish to catch, but when hooked it affords grand sport to the angler, being a stronger fish than the Bass of equal weight. Grey Mullet are often taken by shooting a net across the tidal part of a river, so that when the tide recedes they are unable to make their way back to the sea. At Sennen, near the Land's End, large catches are sometimes secured in the winter by enclosing the fish in seines, and one haul has been known to realise £600. When drawing a ground-seine these fish are so active that they will leap over the head-rope and escape unless precautions are taken to prevent them.

In the Mediterranean Grey Mullet are caught with paste composed of bread and sardines, which is rolled between the

hands. The hook is passed through one end, and the other portion of the bait is then wrapped round the shank, which entirely conceals it. This bait is lowered near the bottom and a lump or two of the paste occasionally thrown in to collect the fish. The rod, which is merely a long bamboo, is allowed to rest upon the stones, a loop of cord attached to the pier being passed over the butt to keep it in position. The fisherman then smokes his cigarette until the motion of the top indicates that there is a fish at the bait.

At Aden large Grey Mullet, weighing up to 10lb. or more, are very plentiful, and they are captured with light floated tackle and small hooks, bread being thrown upon the water to attract the fish. This port, by the way, is, notwithstanding the heat, a perfect paradise for the sea-fisherman. In India, New South Wales, and other places Grey Mullet of different species are to be found.

These fish thrive in brackish ponds having a connection with the sea, and I have taken great numbers, using ragworms principally as bait. They feed chiefly on some kinds of seaweed or decaying vegetable matter, and all bait should be of a soft character. There are two species of Grey Mullet, the thick-lipped variety attaining the largest size. A full account of the method of fishing is given in Chapter XI.

Mullet, Red.

This fish is much esteemed as a delicacy, and has earned the title of "Woodcock of the Sea." It is served at table wrapped in buttered paper, without being opened, and the liver is accounted one of the best parts. The Romans prized this fish very highly, paying large sums for fine specimens, and were said to eat it accompanied with pearl sauce. Red Mullet are principally taken in trawls, trammels, and stop-nets, and they fetch a high price in our

markets. While fishing from a pier-head I caught one of these fish, weighing about a pound, and it gave good sport on the single gut. I was using paternoster tackle, with two No. 8 "Pennell" Limerick hooks baited with rag-worms, and the fish took the lower bait. In the Mediterranean they are often caught with fine hand-lines, and in the Channel Islands instances of their capture with a hook have been recorded. They are also sometimes taken upon spillers set for flat-fish and baited with earthworms.

Plaice.

A flat-fish that is easily recognised by its handsome orange spots. It is extremely common on some coasts where sand alternates with rocky ground. It is captured in large numbers upon spillers, baited with lug-worms, Sand-eels, or pieces of fresh Mackerel or other fish. A useful size of hook is No. 2 round-bend. Plaice can be taken by throwing out a leger line from a pier-head, having two or three hooks on gut attached above the lead, placing them about 18in. apart. Bait with lugs or large rag-worms and fish on the bottom. Large quantities of Plaice are taken by the trawl and trammel-nets, and find a ready sale on account of their excellent edible qualities.

Pollack.

Of all sea-fish there are few which provide such excellent sport as the Pollack. It is a widely-distributed species, being plentiful in most places where sunken rocks abound, and off bold headlands where the tide runs strongly. In Scotland it is known as Lythe, and on the Yorkshire coast, where it is rather scarce, Whiting Pullet is the local name. The Pollack is olive-brown on the back and lighter underneath, but the shade varies according to the surroundings. Small Pollack sometimes acquire a bright red colour, and

these are termed "Soldiers" in Cornwall, a county noted for this class of fishing.

The principal methods are whiffing, railing, drift-lining, and rod-fishing from rocks and piers, all of which will be fully described with the proper baits to use. Large catches are also secured by means of the trammel, special nets being constructed for this purpose, which are called "Pollack trammels." In some localities Pollack are rarely caught weighing more than 6lb. or 7lb., but in other places, such as the Cornish or Irish coasts, they sometimes weigh as much as 20lb. The largest specimen I ever took scaled 18lb., with a measurement of 37in., and was caught upon the red rubber eel (Fig. 47). It was the largest fish amongst a catch amounting to 109lb. in weight, taken at Mullion Cove, near the Lizard, in the month of October. A Pollack of 15lb. in weight may be considered an exceptional size, and the general average of large fish is about 10lb. or 11lb.

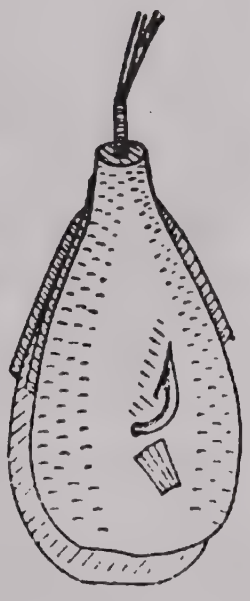


Fig. 58. Chad Bait for large Pollack, showing method of inserting the hook.

An excellent bait for large Pollack is a whole Chad prepared in the following manner:—Take a good sized Chad, scale it and cut off the head, removing the sharp portions of the fins. Then lay the fish flat upon a board, and commencing at the head portion cut along close to the backbone almost as far as the tail. Turn the fish over and do the same on the other side. Then open the flaps and remove the backbone, leaving a small portion at the tail. Take a large round-bent hook, Nos. 6/o or 8/o, and pass the point through the tail, bringing it out into the middle of the bait. Then insert the point in one of the flaps as shown in Fig. 58, which

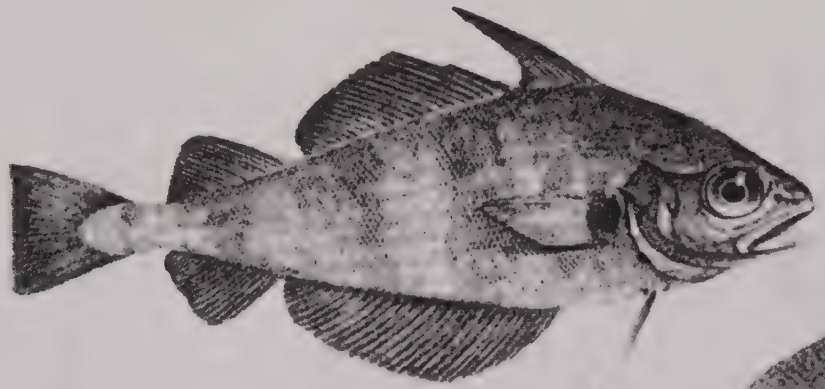
illustrates the completed bait. Put a lashing of thread round the tail of the bait to prevent its slipping down. The tail part of a Mackerel or Long-nose can be rigged up after this manner, and forms a capital bait for either whiffing or ground-fishing.

There is no better fish for the table than the Pollack, but it should be eaten perfectly fresh. It spawns in February, when it is in poor condition for food, but is excellent in the summer and autumn. It is a fish which will not bear carriage by rail, and is therefore rarely submitted for sale in our large markets. (Plate IX.)

Rays and Skate.

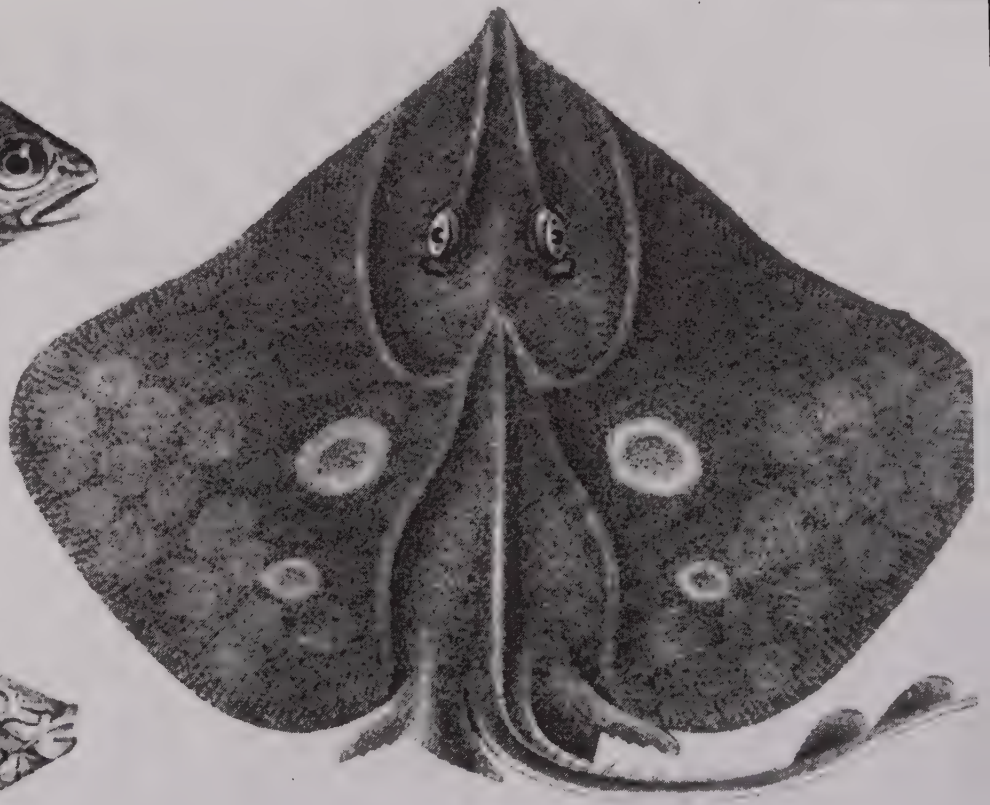
These large flat-fish are captured by trawlers in immense numbers, and find a ready sale. The Thornback, so called from its rough upper skin, is a common species of Ray taken in great quantities in trammels having a large mesh for the purpose. It is brown on the back and of a chalky whiteness on its under side. The mouth of the Ray family is situated underneath, and some of them are almost human in appearance. While ground-fishing in the offing Rays are commonly taken, and the strongest gear must be used for bringing the fish to the surface. The baits should consist of Pilchard, Mackerel, or Cuttle, and the boat-shaped gear (Fig. 18) is generally used.

Skate reach an enormous size, and specimens weighing considerably over 1cwt. are frequently taken in trawls. A fisherman of my acquaintance caught one of these fish off the Cornish coast which weighed 176lb. It was taken on a hand-line, baited with Cuttle, and required two gaffs and the combined strength of two or three men to bring it on board. These fish are extremely difficult to haul on account of their coming up "broadside on," thus offering a much greater resistance to the water. I saw on one occasion a



WHITING-POUT (Gadus luscus). Also known as Bib, Blinds, Blains, Rock Whiting, &c. The name Blinds is in allusion to the fact that when hauled from any depth the water pressure exerted causes the eye membrane to enlarge, giving the fish a "blind" appearance.

BALLAN WRASSE (Labrus maculatus). A very handsome variety of Wrasse, weighing from 1lb. to 8lb. They fight well.



RAY or SKATE (Raia batis). A species scaling great weights, a requiring very strong gear for its capture. The mouth parts a situate underneath.

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large Stingeree, a species of Skate, in Melbourne, Australia, which weighed over 4cwt., and completely filled a shop window. The females of this fish are commonly known as Maids to the fishermen. (Plate VIII.)

Shark.

When drift-lining or ground-fishing in deep water the capture of a large Shark is of not uncommon occurrence. The Blue Shark, which attains a length of 6ft. or 7ft., is often taken off the Cornish coast whilst fishing for Whiting, and will rarely refuse a whole Pilchard. Several other species, such as the Porbeagle and Hammer-headed Shark, are occasionally taken. The White Shark, or man-eating variety, so much dreaded by sailors in foreign waters, is rarely found upon our coasts.

Smelt.

This silvery little fish, 5in. or 6in. in length, frequents harbours in large numbers, and derives its name from its strong and peculiar odour. When observed in extensive shoals they are captured in small-meshed seines, and fetch a remunerative price in the market.

An interesting method of catching Smelts is practised in Falmouth harbour by means of round nets having a ¼in. mesh, and attached to iron hoops 6ft. to 8ft. in diameter. The netting is about 5ft. deep in the middle when suspended, and is tanned to preserve it. The hoop is composed of round iron, ½in. in diameter, and the two ends overlap where they meet, and are bound together with cord. A better plan, however, would be to weld the ends together. This net is suspended by two slings made of thin rope, having a spliced eye at each end, which is attached to opposite sides of the hoop. In the middle, where the cords cross each other at right angles, an iron thimble is introduced, which is, of

course, some little distance above the centre of the net, the slings being made slack on purpose. To the eye of the thimble a thicker rope is attached, which passes over a pulley-block fitted to the end of a short spar projecting from the mast. By this arrangement the fisherman is enabled to lower or raise it easily.

Having lowered the net 3ft. or 4ft. from the surface, floury boiled potatoes are broken up and thrown in above the net to collect the fish; chewed bread is also used. When a few Smelts have been attracted the net is drawn up quickly by means of the rope or halliards. The favourite season is Christmas and two months afterwards, the fish not being so "wild" then. Plaice, and other flat-fish, and Lobsters are also captured by a similar net, 8ft. across, baited with a piece of fresh fish attached to the centre, and allowed to rest on the bottom for a time. Sometimes the hoop is made to fold up for the sake of portability. These nets are worked by a single man in a small boat, but in some places are managed from pier-heads with the aid of a short pole. The Atherine, or Sand Smelt, is the variety generally met with, the true Smelt, a delicate and much esteemed fish, being taken in rivers by small-meshed nets. The latter is a migratory fish rather larger than the Atherine. In many districts Smelts are commonly known as "Sparling." Rod-fishing for Smelts is fully described in Chapter XI. (Plate IX.)

Sole.

No fish is more prized as an article of food than the Sole, and the supply is chiefly maintained by the trawl-nets. They are also taken in trammels, and occasionally in stop-nets. There are several varieties of this fish, but most of them are inferior to the real Sole, which always realises a high price. Occasionally they are taken on a small spiller baited with

rag-worms, or by the angler from a pier-head fishing on the bottom. Another kind, known as the Lemon or French Sole, is consumed in large quantities, but the flesh is somewhat soft and inferior in flavour. The Variegated Sole, or Thick-back, as it is locally called, is a diminutive species from 6in. to 8in. long, the upper side being of a mottled-brown colour. They are excellent as food and generally much cheaper than the larger Soles. Numbers of these small Soles are taken by Brixham trawlers.

Turbot.

As a marketable commodity this fish ranks very highly, being almost equal to the Sole, and is in much demand for grand dinner parties. It is taken by trawls, trammels, and long-lines or spillers set upon sandy ground. The Turbot is of a speckled brown colour on the upper side and white underneath, the back being quite rough to the touch. It occasionally attains a size of 30lb. or 40lb., but a 15lb. Turbot is a good fish.

The best baits are Sand-eels, Smelts, or any small silvery fish, but it also takes fresh Mackerel or Pilchard cut up into slices. It is important that the bait should not be in the least degree tainted. It is only rarely that this fish is captured upon a hand-line. Small Turbot are frequently caught upon a sand-spiller set from the shore at low water and baited with Launce. (See Chapter XII.)

Whiting.

No fish affords better sport to the ground-fisher than the Whiting, and it is caught in numbers all round our coasts. They are usually taken upon regular Whiting-grounds, situated from one to six miles from the shore, according to the locality and the deepening of the water seawards. Off

the South coast they are generally known as "Silver Whiting," a lighter variety than those caught off Cornwall, where specimens attain a weight of 3lb. or 4lb.

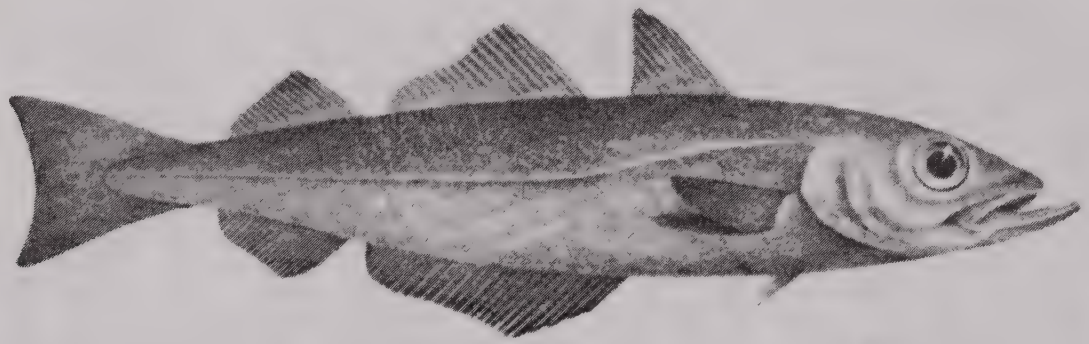
Ordinary ground-lines are used, but a favourite method is to employ the rod with single gut paternoster and No. 1 eyed hooks attached. Fig. 59 shows the shape of hook largely used by professional hookers. It is a Kirby bend hook, having an extra long shank to facilitate unhooking, the teeth of these fish being numerous and very sharp. Hooks will, of course, vary a little in size according to the average size of the fish, and in Cornwall we used No. 3/0 round bend, which are difficult to beat. Pieces of fresh Pilchard, Herring, or Mackerel are chiefly used as baits; Mussels and lug-worms are also excellent.

Fig. 59. Whiting Hook and portion of Snood.

In some of the Scottish lochs Whiting are numerous, and may be taken by the rod-fisherman from boats at anchor. In fishing for Whiting plumb the bottom, and then raise the line so that the baits are just clear of the ground. The flesh of the Whiting when cooked is specially recommended for invalids, being light and easily digested. Great quantities of Whiting are taken by trawlers hailing from Brixham and other ports. This fish is often confounded with the Pollack, to which it bears a certain resemblance. (Plate IX.)

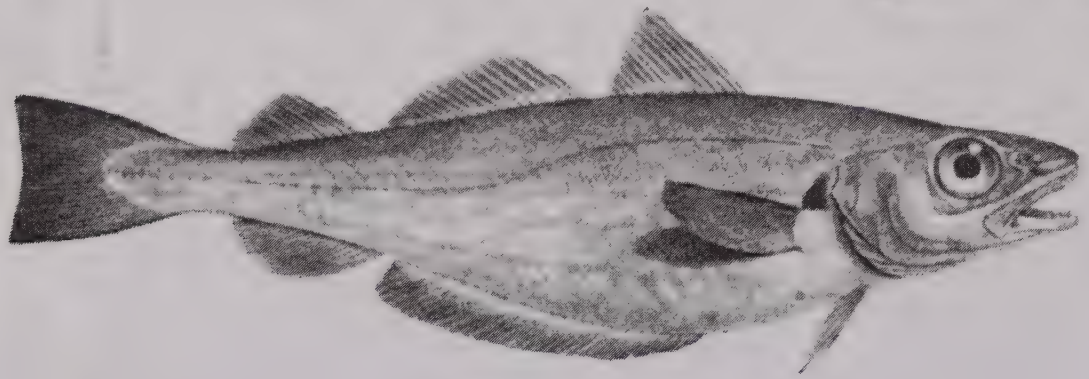
Whiting-Pout.

This delicate little fish is also known as Rock-Whiting, Bib, Blinds, Blains, and other local names, and abounds on muddy or rocky ground, especially frequenting harbours and piers. When hauled up from any great depth the pressure of the water causes the membrane over the eyes to



POLLACK or WHITING POLLACK, an abundant fish in many rocky districts, and one affording good sport by whiffing.

ATHERINE or SAND-SMELT (Atherina presbyter). A common species, not to be confused with Osmerus eperlanus, the true Smelt.



WHITING (Gadus merlangus). One of the most appreciated of all sea-fish, and a very abundant species.

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become enlarged, which gives them a blind appearance. They always feed near the bottom, and may be taken with paternosters or fine hand-lines, baiting with Mussels, rag-worms, lugs, or pieces of fresh fish. The hooks should be Nos. 1 or 1½ round bend, or Nos. 3 or 4 eyed Limerick pattern, attached to fine snoods or single gut. When first taken from the water the Pout is of a golden colour, and some have dark bars across the sides. Very fine specimens are captured by trawlers, measuring over a foot in length and weighing about 2lb., which is an exceptional size for this fish.

The Power, or Poor Cod, is a diminutive member of the Cod family, rarely exceeding 6in. or 7in. in length, and is often captured from a pier while Pout-fishing. It closely resembles the Pout, but the body is rather slenderer. The flesh of the Pout is most delicate, and when fresh is even superior to that of the Pollack. (Plate VIII.)

Wrasse.

These interesting fish all possess sharp and numerous teeth, which enable them to feed upon limpets, crabs, and other Crustacea. They haunt piers and rocks wherever long seaweed abounds, and usually swim close to the bottom. The Ballan Wrasse is a large and handsome species, adorned with large spots, and I have caught them weighing 4lb. or 5lb., using rag-worms as bait. When hooked they offer a dogged resistance, which is rather trying to a slight rod. The Cook, or Cuckoo Wrasse, is brightly coloured with blue and red, and is taken ground-fishing in a rocky locality. Besides these there are several other varieties, but none of them attain a great size. The flesh of the Wrasse is soft, and of little value as an article of food. Large rag-worms, Mussels, earthworms, and the red part of the Spider-crab are the best baits.

In Cornwall these fish are locally known as Rae or Raff,

and are taken in wicker-traps called "Rae-pots." These are constructed like crab-pots, but finer osiers are used, and the bars are placed close together. The bait consists of pounded Spider-crab, She-crab, or other refuse, placed at the bottom of the pot, which is set upon rocky ground exactly like a crab-pot. The fish enter at the top, and being unable to find their escape continue swimming round and round until the crabber relieves them from their troubles. When caught they are used for baiting the crab-pots, a supply of bait being sometimes difficult to obtain in rough weather. Fine Congers are also occasionally taken in these traps. (Plate VIII.)

Chapter VIII.

GROUND FISHING.

O method of sea-fishing is so universally adopted or so popular with sportsmen in general as ground fishing, which possesses the great advantage of being suitable to all localities, not only in home waters but also in foreign seas. It is chiefly practised from boats at anchor, using a weighted line in order to keep the baits on or near the bottom, according to the class of fish it is desired to take. The principal fish comprising the catch will consist of Whiting, Bream, Gurnards, Haddock, and Pout; there are many others, all of which have been individually mentioned. In a rocky locality some distance from the shore a great variety may be met with, and until the fish comes into sight it is almost impossible to say what kind of prize awaits one at the other end of the line.

Lines.

Hemp lines will be preferable to cotton by reason of their greater strength, and sizes will vary according to whether the ground is situated near shore or in the offing. Lines of 20 fathoms in length are generally long enough, and if found to be insufficient for the depth it is quite easy to connect another

one. A good general size is a line weighing a pound per 30 fathoms, which will be strong enough for even the heaviest fish. Lines should always be stretched as described in Chapter II., and they may be dressed if required. With the rod and paternoster tackle ordinary reel-lines should be used, hemp or flax lines being the best for heavy work.

Leads.

No strict rules can be laid down with regard to the weight to be used, which will depend upon the strength of the current. In harbours where there is scarcely any tide a lead of 2oz. or 3oz. will often be sufficient, further out a 1lb. to 2lb. sinker will be required, and in deep water up to 20 fathoms a 4lb., 5lb., or even 6lb. lead will be needed to keep the bottom. In order to fish the whole of a strong tide, when fish are principally on the look-out for food, it is important to have one or two leads of extra weight in the boat. Always use as light a lead as possible, since it is more difficult to feel a bite with a heavy one, not to mention the work of hauling it up.

Paternosters will be used by the rod-fisherman as described in Chapter IV., and either of the rigs mentioned in Chapter III. by the hand-liner, according to fancy. Conical leads are the most convenient to use, as they may be lowered straight without any difficulty, though some prefer the boat-shaped pattern. As most ground-fish have sharp teeth, fine snooding is preferable to gut next to the hooks, but the latter may often be employed, and will ensure better sport. This much depends upon the locality, and what kind of fish you are principally expecting.

Hooks.

Some idea of the different sizes has already been supplied under the headings of the various fish, but I should mention that for ordinary bottom-feeders, such as Bream, Whiting, small Congers, and others, I use No. 3/o round-bent hooks,

which will hold even a large Ray or other monster of the deep. A few eyed Limerick hooks are useful for paternosters, being so quickly attached to gut. For Whiting-pout, Dabs, Flounders, Chads, and small fish inshore they are particularly useful. Kirby bent hooks are often preferred by professionals, but there seems no object in bending the point sideways, as by so doing the efficiency of the hook is lessened, while in striking a fish is more liable to be missed. The round-bent hooks now supplied by Messrs. W. Bartleet and Sons, Redditch, are made of very fine wire, and as the quality and temper are unquestionable, they are admirably adapted for all kinds of ground fishing. Plate III. gives a scale of these hooks, and represents the most useful sizes. Some of these hooks are provided with rings by which they may be quickly attached to snooding (see Chapter IV.), and Plate IV. illustrates a few of the sizes, ranging from Nos. 5 to 14.

Baits.

Fresh fish, such as Pilchard, Long-nose, or Mackerel, cut up into pieces, form the principal bait when anchored upon rocky ground. Strips of Cuttle, Mussels, lugs, and rag-worms are also great favourites, all of which have been fully described. It is always advisable to arrange for bait the day before, so that if an early start has to be made there will be no delay in procuring it. On the way to the fishing-ground always put a line overboard for a Mackerel, baited with a spinner, as one or two of these fish will prove materially useful for bait.

To keep a boat clean and free from the smell of pieces of fish lying about, a bait-box as represented in Fig. 60 is really essential. It consists of an oblong box, made of pine or deal, 18in. long, 9in. wide, and about 6in. deep. On the top is a sliding cover, the same width as the box, but only half its length, to the bottom of which are nailed two narrow strips of

wood to keep it in position. There is a handle at each end of the box formed of pieces of thin rope passed through holes bored in the wood and afterwards knotted. When finished it should be given two coats of white paint inside and out. Fig. 61 shows the bottom of the cover, indicating the pieces of wood or "runners," also the bait-knife, which is kept in position until wanted by two narrow strips of leather tacked to the wood. For cutting up bait there is nothing better than a shoemaker's knife (obtainable at any cobbler's shop for a few pence), the blade being very thin and sharp. A hone

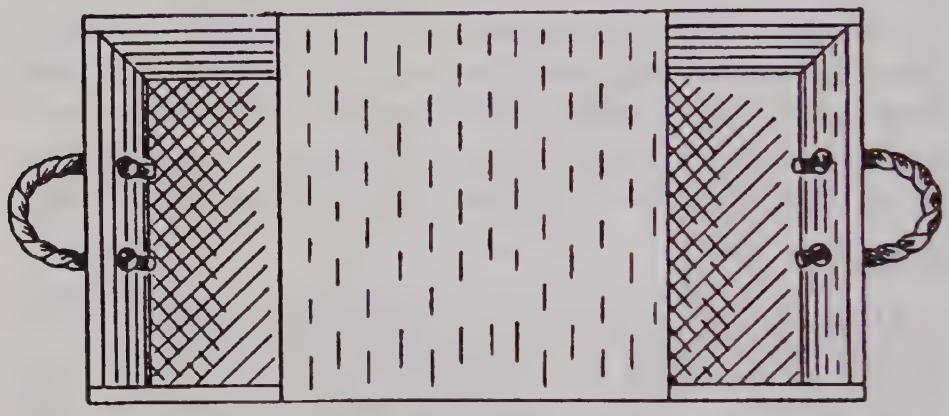


Fig. 60. Bait-Box complete, with cover in position upon which the bait is dissected.

should be kept in the boat for renewing the edge when required.

The method of cutting baits is as follows:—Take a Pilchard or other fish, and holding it overboard, scale it with the knife. Now lay it upon the cover of the bait-box, and inserting the blade at the tail, pass it along close to the backbone as far as the head. Do the same on the other side, and throw overboard the head, backbone, and entrails (if not required) to attract the fish in the neighbourhood of the boat. Lay one side of the fish, bright side downwards, upon the cover and cut it up into diagonal strips, each about ¾in. wide. When

both sides have been cut up sweep the baits into the box itself, where they will keep fresher, and the cover will protect them from the sun. It is advisable not to cut up too much bait at a time, as it deteriorates more quickly in this condition, and is not so readily acceptable as when used absolutely fresh. After a day's fishing the bait-box should be plunged overboard by grasping one of the handles, and thoroughly washed, a precaution which will always maintain it sweet and clean. Sometimes a tray is used for cutting up bait, the knife being attached by leather supports fastened to the back of it inside.

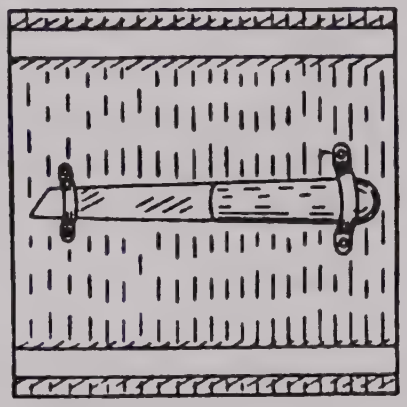


Fig. 61. Cover of Bait-Box, showing lower side and shoemaker's knife held in position until required by two strips of leather.

Marks, and How to Take Them.

In order accurately to locate the position of a certain fishing-ground, and to enable one to revisit it on some future occasion, it is necessary to take proper marks. This is done by bringing two noticeable features of the landscape in a line with one another; the head should then be turned one-quarter round and two other objects brought together. To render the description quite clear, the reader should refer to the accompanying illustration (Fig. 62), showing a boat anchored, the position of which is determined by a flag-staff "on" with a cottage on one side and a church-steeple over a distant rock on the other. If possible marks should be taken "on the square," *i.e.*, at an angle of 45 degrees; these are termed "quick marks," and greater accuracy is thereby obtained. Any object of a permanent character will be suitable so long

as it may be plainly seen, but anything that is liable to be removed or cut down, as, for instance, a solitary tree, should not be chosen.

A simple and interesting experiment is to drive a peg into the ground, or place a penny in a certain position, and then to take marks in the manner already described. By remembering the objects which were brought into a line with one

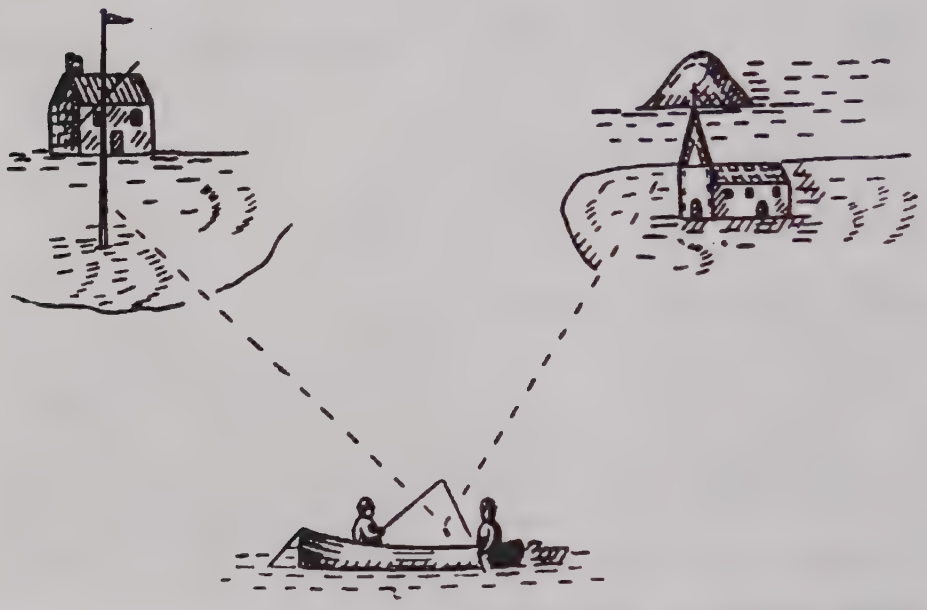


Fig. 62. Sketch showing Method of Taking Marks, the position of fishing-boat being determined by the direction of the dotted lines.

another it is surprising with what exactness the precise spot may be recovered.

In bringing up, allowance must be made for the amount of rope paid out after the anchor has touched the bottom, and the boat should be rather to windward of the spot where it is desired to fish. On some grounds it is most important that the boat should be on the exact spot if good sport is to be obtained; on others, however, this does not much matter. All places round our coast have recognised fishing marks, known

principally to the local men, from whom they may be ascertained. The best plan is to get an old fisherman to take you out in his boat and point out the marks, when they should be jotted down in a book for future guidance. In all cases they should be seen from a boat to be properly recognised, as they appear very different on land.

Taking marks is also useful for ascertaining the position of a dangerous rock at the entrance to a harbour which is liable to be covered at half-tide, and by no other means could its situation be accurately remembered. Foggy weather is the worst of all for sea-fishing, as the haze prevents one seeing objects on the land, and I have often heard fishermen say that they preferred a gale of wind. When going out night-fishing always start in plenty of time, so as to reach the ground before darkness comes on.

Method of Fishing.

Having prepared the lines and cut up a sufficient number of baits, the pieces must now be placed upon the hooks. Pass the hook once through the flesh side as represented in Fig. 63, then bring the bait well up the shank and, turning the point over, insert it through the same side a second time. The hook properly baited is shown in Fig. 64. As will be here noticed, this plan gives a turn to the bait which prevents the hook from being easily robbed. Any kind of bait, consisting of pieces of fish, Cuttle, &c., may be adjusted in this manner; but Mussels and lug-worms will require different treatment, as described in Chapter V. In ground-fishing the hook should be concealed as much as possible, as the fish have plenty of time to examine the baits. It is important not to cut baits too thick, and the hook should be entered at the thickest end, leaving the thin or narrow portion free, which will cause the fish to more readily accept it.

Having baited the hooks, at once put them overboard,

allowing the snooding to stream away clear with the tide; then lower the lead. Next plumb the bottom, raise the lead about 1 fathom, and hold the line over the first finger of the right hand. If a bite is felt do not strike immediately, but wait for a second or two, until the fish has swallowed the bait, before commencing to haul. The distance the lead should be

Fig. 63. Baiting a Hook for Ground Fishing, showing first insertion.

from the bottom will, of course, be determined by circumstances and the length of the snooding. As a rule, however, the baits should be raised just clear of the bottom for most kinds of fish. It is an excellent plan to keep moving the hand occasionally; this alters the position of the baits and makes them more attractive. In fishing for Dabs, Flounders, and

Fig. 64. Hook completely Baited for Ground Fishing, being turned over and introduced a second time through the flesh side.

other flat-fish, just raise the lead from the bottom, when a bite may be more easily felt.

When using a rod and paternoster gear, the lead may be allowed to remain upon the bottom. As the hooks are attached at different depths above the sinker, various fish will be attracted, and the slightest touch will be communicated to the

butt of the rod. The only difference in using a rod will be that the line is wound in by the reel until the fish is near the surface, when it may be lifted in by hand. An excellent description of rod for ground-fishing is the "Farne Sea Rod," described in Chapter IV. When anchored in deep water there should always be a strong gaff in the boat, for, however strong the snooding may be, a large fish, such as a Ray or Skate, could not be lifted in without its aid.

Ground-baiting is most important, as it causes fish to congregate about the place where the boat is anchored. It consists of placing the entrails of Pilchards, pounded Crab, or other refuse into a bag of fine netting. This is lowered by means of a line to which a large stone is attached, and shaken up occasionally.

While ground-fishing at any distance from the coast it is always advisable to put a drift-line overboard, baited with a large piece of Pilchard, Long-nose, or Mackerel. Attracted by the smear of the fish thrown overboard, a large Pollack or other fine specimen may approach comparatively near the surface. After paying out the line and making the end fast to the boat, about a couple of fathoms should be hauled in and a bailer, or loose thowl-pin, attached. If a fish should take the bait the fact will immediately be announced by the noise caused by the slack line running out over the gunwale. There should be treble gut or strong snooding next to the hook, as it is not unlikely that a large blue Shark may take the bait, an experience which occasionally happens when anchored on a Whiting ground. These fish, having sharp teeth, require the strongest tackle to land them, and afford really fine sport on a rod. Large Mackerel are also frequently taken upon the drift-line, especially when anchored at no great distance from land. Some of the fish caught ground fishing possess sharp fins as well as powerful jaws, and care must be taken whilst unhooking them.

Occasionally they may be released from the hook by jerking the snood suddenly, but an old fisherman often places the fish between his knees for this operation. Small Congers should be cut at the back of the neck as soon as possible before extracting the hook, as they frequently gorge the bait.

The proper gear for Conger-fishing has already been mentioned, and this style is more successfully practised by night. It is customary to commence fishing for Bream, and after they have ceased biting to remove the fine snoods and attach the usual Conger snood and hook (see Fig. 55). To show how much Conger appreciate fine gear, it may be mentioned that they frequently take both the hooks intended for Bream. More fish will, consequently, be caught by employing rather a small hook, but the line must be strong. A Conger takes the bait in a peculiar manner, and does not swallow it at the first attempt. It first approaches it and gives it a shake; then retreats, and after a few seconds attacks it from another direction. When you feel a drag upon the line, indicating that the fish is making off with the bait, is the time to strike. The lead should be raised just off the bottom, leaving the bait lying on it. Four lines from one boat are ample at night-time, as there is great liability of their becoming entangled in the dark, when difficulties of this kind are much increased. A Conger possesses great power in its tail, and if it can once obtain a leverage with this member over the side of the boat it will be overboard directly. It is, therefore, always best to gaff a large fish towards the tail, and whilst another person holds the snood just above the hook, a deep cut should be made with the bait-knife at the back of the creature's head, so as to sever the vertebræ. Sometimes a heavy club, or "priest," is used for quieting a large Conger; this weapon is called in Cornwall a "Conger-bat."

Several snoods, ready fitted up, should be at readiness in the boat, and if any difficulty of unhooking occurs, the snood

itself should be disconnected and left in the mouth of the Conger. Besides saving much time the end of the snood will be useful as a means of shifting the position of the fish in the boat if so required.

Congers attain an enormous weight, sometimes scaling a hundredweight or more, and are difficult, if not dangerous, creatures to handle. An old fisherman related to me how he hooked a large one while alone in his boat, and after great difficulty managed to get the whole of it inboard. After escaping overboard two or three times the operation of hauling it up again and gaffing had to be repeated. When finally in the boat, however, the huge creature "took command," and the fisherman was so terrified that he climbed up the mast to get out of the way. After creating havoc with everything on board the Conger succeeded in making good his exit for the last time, and "very glad, indeed, I was to be rid of him, sir," were the old man's concluding words. A fish-salesman told me that he received a Conger weighing 83lb. on one occasion, and off the Cornish coast specimens attaining 60lb. are not uncommon. A Conger frequently comes up ahead of the line, leading one to imagine it has got off, and it is necessary to be prepared for this dodge, especially if the fish is a large one. Neap or "Slack" tides are the best for Congering and night-fishing.

Other large fish, such as Cod, Pollack, Ling, or Hake, will often be captured while Congering. For night-fishing a reliable boatman, who is used to the business, should accompany the amateur.

All through the summer and autumn ground-fishing may be enjoyed, July and August being the best months for Whiting, Bream, and other fish. In deep water neap-tides are most favourable, as there is less current, and lighter leads may, consequently, be employed. Generally speaking, the flood tide is the best for all kinds of ground-fishing.

Chapter IX.

WHIFFING AND RAILING.

Whiffing.

FOREMOST among the delightful and sportsmanlike methods of fishing from a small boat is that known as whiffing, trailing, or trolling, names which are practically identical in meaning. It simply consists of towing lightly-weighted lines from the stern of a rowing boat, generally propelled by a crafty old fisherman well acquainted with the peculiarities of the tide and the different grounds likely to yield a good catch of fish. The best kind of coast for whiffing is where bold headlands are found around which there is a strong run of tide, and deep water close to the rocks. The Cornish coast is admirably adapted for whiffing, but in most rocky localities a certain amount of sport will be obtained. The principal fish met with are Pollack, Coal-fish, Bass, and Mackerel, whilst occasionally a Cod, Bream, Gurnard, or other variety will be found amongst the catch. When using a small spinner or narrow strip of Mackerel, I have often taken Gar-fish, and occasionally a large Sand-eel, both being valuable as bait.

On one occasion while whiffing off the Cornish coast a near relative of mine took a specimen of the strange Sun-fish, weighing 53lb., but whether it was accidentally caught or

endeavoured to swallow the bait of its own accord it is difficult to say. As already mentioned, the John Dory not infrequently takes a spinning-bait, and this fish might easily be mistaken for a bunch of seaweed from its quaint appearance and lifeless manner when hanging on the line; yet a large specimen, of 4lb. or 5lb. in weight, is a prize worth having. On another occasion I assisted in the capture of a large Shark, about 6ft. in length, which had broken the fisherman's gaff, and between us we eventually secured the monster, cutting off its tail to prevent its doing any more mischief. A guillemot, or a diving-bird, will occasionally endeavour to swallow the bait when near the surface, and often succeeds in attaining its object; but it is only fair to mention that, being of no value as food, the bird should always be liberated again.

Lines.

Hemp lines, weighing ½lb. and measuring 30 fathoms in length, are generally preferred. All hand-lines should be carefully stretched, so that they will not kink when unwound and lying in the boat. The rod-fisher will use his ordinary reel-line, which should measure from 100 yards to 150 yards in length. Excellent lines for whiffing are made by the Manchester Cotton Twine Spinning Company, Compstall, near Marple. They are cable-laid cotton lines, dressed with a preparation that effectually preserves the material and renders them less liable to kink.

Having stretched the line, the next operation is to weight it, which is best accomplished by applying lead wire at equal distances of 1 fathom. This method causes the line to descend gradually in the water, but is, of course, only suitable for a hand-line. In size the lead wire should be No. 55 Standard gauge, and should be cut up into a number of lengths, each 10½in. long. Take one of the pieces, and having

doubled it, coil the wire evenly upon the line with the fingers as shown by Fig. 65. On the left side of the illustration we have the commencement, and on the right the completed process. The ends of the wire should be pinched closely to the line with pliers to finish them off. The last 2 fathoms of the line, which will be inboard, need not be weighted.

Fig. 65. Weighting a Whiffing Line. On the left is the commencement, and on the right is the completed process.

When using two lines, there is nothing better than a horse-hair line with pipe-leads on one side, and a lighter line (weighted with lead wire at every 2 fathoms) on the other. In going about these lines will always keep clear of each other, one being shorter and considerably heavier than the other.

To the end of the main line attach a No. 2 German silver

Fig. 66. Attaching Snooding to the eye of a Swivel, performed by passing the end through the eye, taking two turns over the left fore-finger, and putting the end backwards through the coils.

swivel by means of a spliced loop, and to the other eye 4 or 5 fathoms of fine snooding. The best snooding for this purpose is composed of three strands of No. 18 Irish flax fishing thread (formerly known as "Shrewsbury Thread"), obtainable from Messrs. William Good and Son, 47, King William Street, London Bridge, E.C., who will lay up not

less than 1lb. to order. It is extremely durable, and has a breaking strain of about 38lb. For finer snooding No. 22, the next size smaller, is admirably suited. Hemp snooding is, however, quite suitable, and a medium size should be chosen.

For connecting it to the eye of a swivel there is no better way than that shown by Figs. 66 and 67. Pass one end of the snooding through the eye, and releasing the snood, take two turns round the forefinger of the left hand and the main part. Remove the coils from the finger and pass the end backwards through them (see Fig. 66). Keep the coils in their respective places and draw them tight, when the knot will appear as in Fig. 67 before sliding it up to the eye of the

Fig. 67. Attachment for Snooding, with knot closed and ready for drawing up to the eye of the swivel.

swivel. At the other extremity of the snooding a small spring hook swivel may be attached; this greatly facilitates the removal of the cast when the fingers are cold. This useful little article can be obtained from Mr. W. J. Cummins, Bishop Auckland.

Wire and gimp traces are often used between the snooding and the bait, but they are not so reliable as gut, though sometimes advantageous for heavy fish having sharp teeth. A cast of 1yd. to 1½yds. in length will be sufficient, and should be single, double, or treble, according to the class of fish. In the autumn I prefer treble gut for large Pollack, but double will often be strong enough. This matter must be left largely to the judgment of each individual fisherman, and gut varies very much in quality.

When using a rod lighter tackle may generally be employed than with a hand-line, but in fishing for large Pollack it must be sufficiently strong to keep a fish out of the weeds. The usual method of weighting the rod-line is to insert a pipe-lead of 3oz. or 4oz. between the end of the line and the trace. This may be merely strung on the line, or provided with swivels on each side.

Hooks.

The Dublin Limerick tinned hooks with tapered shanks (Plate I.) and whipped on to gut are the best to use, though eyed hooks may be employed. For small Pollack, Mackerel, Gurnards, &c., Nos. 1½ or 2/o are the best sizes, whilst for heavy fish Nos. 6/o or 8/o should be utilised. For Pollack and Bass it is always advisable to use a fairly large hook, as these fish possess wide mouths. Only the best quality of hooks should be employed for whiffing.

Baits.

In Chapter VI. the most killing artificial baits for whiffing were described, and if called upon to make a selection I should recommend the red rubber eel and the Ray's-skin bait. If fish are biting shyly a long slice of Gar-fish or Mackerel is often used in conjunction with the latter, the hook being merely passed once through the tail of the bait. When using a large single hook devoid of a spinner, two "sneeds" of Gar-fish form an excellent bait, one drawn up above the shank and the other hanging from the bend. They should be so adjusted that the flesh sides of the baits come together and the shiny skin is outermost.

A slice from the side of a large Sand-eel, or half a Smelt scaled and cut lengthways, may also contribute towards success. The Eel-tail bait (Fig. 56) is a great favourite with local fishermen, and is a capital lure for large Pollack in

deep water. The boat should be rowed very slowly, and a sinking and drawing motion imparted to the bait. Small Eels and Lampreys are also placed whole on the hook, being kept from slipping down by a lashing of thread above the shank, or by a small lip-hook. Fishermen often keep fresh-water Eels alive in a small tank containing a few small stones until they are required for bait.

Before rubber baits were invented some fine fish were taken with a whole Chad, rigged up as described by Fig. 58. On one occasion two large Pollack struck the lines simultaneously, and were both safely landed; they weighed 14lb. and 14½lb. respectively. In the Scilly Isles—a capital place for Pollack-fishing, by the way—the Sea-loach or Rockling, a small spotted fish found under stones amongst rocks, is used for whiffing.

For Mackerel and small Pollack there is no better gear than the Baby-spinner with a "sneed," or small slice of Garfish or Mackerel, and two or three white flies attached to the cast at intervals above it. A small Sand-launce, hooked through the eyes and depending from the bend of the hook, may replace the slice of fish.

Method of Fishing.

Two lines will generally be sufficient for whiffing, and after paying them out the reels should be carried forward and made fast by a couple of turns around the fore-thwart. While seated in the stern you can then hold a line in each hand. If a fish is felt upon one of the lines you can then immediately drop the other line and commence hauling your fish. The boatman should meanwhile pick up the discarded line and continue rowing gently to prevent its going to the bottom. It often happens that a second fish will strike the line you have dropped, in which case your man can haul it, and both fish may be ultimately landed. It is always better

to be seated with your back to the rower, as then no delay occurs in commencing to haul.

Whether you use a rod or a hand-line the method of fishing will be much the same, and the heavier weight should be on the latter, so as to keep them clear of one another. When two of the party are fishing with rods it is, of course, possible to manage four lines, and with care they will not become entangled. I have always found, however, that an increase in the number of lines is not productive of good sport. As a rule more than these only tend towards entanglement.

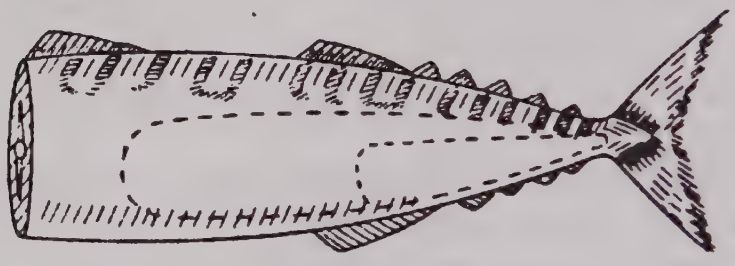


Fig. 68. Tail portion of a Mackerel, dotted lines indicating the method of cutting Baits.

For catching Bass there is no better bait than a rubber eel without a spinner, using a long line and a salmon-rod with rather a pliant top, which imparts a lively motion to the eel. Having plenty of line to allow, there will be no difficulty in ultimately killing a Bass, which fights, like a gentleman, on the surface, and does not bore down to the weeds. With a large Pollack, on the other hand, great care must be exercised, and strong tackle, combined with a stiff, short rod, is absolutely essential.

Fig. 68 represents the tail portion of a Mackerel, the dotted lines indicating how baits should be cut for whiffing or railing, according to the sizes required. This bait is known as a lask, sneed, flot, fion, and by other names. The method of cutting

it is as follows :—Take a perfectly fresh Mackerel and scrape the tail part with a sharp knife. Now lay the fish upon a board and make a diagonal incision about 2½in. from the tail through the bright under-skin. Turn the back of the knife towards you, and with a sawing motion remove a thin, narrow slice as far as the fork of the tail, but not cutting deeper than the red flesh. The muscles of the tail afford a firm hold for the hook.

To bait the hook lay the slice, bright side downwards, upon a flat piece of cork, and inserting the point at the tail portion press the barb right through into the cork beneath. On withdrawing it the hook will be found ready baited. Some fishermen hold the Mackerel between the knees and bend the tail over so as to tighten the skin before removing the bait. In cutting a large sneed, 8in. or 9in. in length, the knife may proceed rather more deeply, and the bait should be cut more from the side of the fish (see outer dotted lines in Fig. 68). A Long-Nose, being a valuable fish, may be cut up into several baits, but a Mackerel will only provide two, one from each side of the tail.

In paying out the line be careful that the end is made fast to the reel, otherwise your fishing may come to an abrupt conclusion. It is also quite possible to drop the reel overboard, which will sink almost directly, and in deep water cannot be recovered. Always make the line fast round one of the thwarts, and have a fathom or so inboard in case of emergencies. A reliable boatman, well acquainted with the grounds, should accompany the amateur. If possible, a crabber should be engaged, as these men from long experience know where all the sunken rocks exist and the most likely places to try.

In whiffing for large Pollack the boat should proceed quite slowly, and the nearer you can fish to the bottom without hooking the weeds, the better. If fish are not biting well, it

is a good plan to haul in a fathom or so, and then to throw the coils overboard again; this dodge will often induce a large Pollack to swallow the bait. When a good fish has been caught it is always advisable to take "marks" (as described in Chapter VIII.), and the boat should then be rowed over the same spot again. Like human beings fish are fond of company, and where one is found there are probably more. The movements of gulls or other sea-birds should be closely observed, and when flying close to the surface they indicate the presence of shoals of fish which are trying to escape from large Pollack or Bass in pursuit of them. Sea-gulls are undoubtedly the best friends of the fisherman, and visitors should refrain from shooting these beautiful and interesting birds.

For small Pollack, which make their appearance in the spring, and Mackerel the pace should be rather fast, especially for the latter. Gar-fish will also seize a bait when proceeding rapidly near the surface, and when trying for these fish it is advisable to put out only half the line.

When whiffing a sharp look-out must be kept for crab-pots, which are numerous in some localities, and occasion the loss of many valuable baits. This is especially the case when the corks are "under-run," or just beneath the surface, when they cannot be always observed. It will always be remarked, however, that crab-pots are set upon good whiffing-ground, and sometimes the nearer you can fish to them without getting foul the better your chances of success.

If you should hook the bottom do not exert any strain upon the line, but get your man to back the boat until it is right over the spot, when, by judicious treatment, it may be freed. This advice also applies in the case of a large Pollack taking the line to the bottom; but in such a state of affairs the condition is almost hopeless. Sometimes, however, the fish will swim round the other way and come out clear. It is

often a good plan to send a messenger down, consisting of a 2lb. or 3lb. lead fitted with a large ring and attached to a separate line. By pulling at this the bait, and perhaps the fish along with it, may be drawn out sideways. When hauling up a line gently, and stopping at intervals, Pollack will often follow the bait up to the surface, and take it while the snooding only is in the hand. This is a common habit of theirs, and apparently the fear of losing the bait makes them forget their usual cunning. If the fish is a large one, line must of course be allowed, and being near the top no difficulty should be experienced in playing it.

Should a heavy fish take the bait, always haul in the line steadily, hand over hand, taking great care never to miss your hold or allow it to slacken. It is a capital plan to grasp the line between the forefinger and thumb, so that in case of an unexpected rush on the fish's part no sudden strain will occur to check him. Even the strongest gear may be broken if the fisherman does not allow line at a critical moment, and this applies equally to the rod or to the hand-line. For repairing spinners, which are often liable to become bent or damaged by the jaws of a large Pollack, a small pair of parallel pliers should be carried.

Single-handed whiffing may be practised from a small boat, and for this method I am inclined to think that a hand-line is more convenient than a rod. Light oars should be used, and the line, after taking a turn or two with the reel around the thwart, should be held upon the forefinger of the right hand by a large loop. Rowing and fishing may thus be enjoyed at the same time. When a fish is felt, the oars should be dropped and the line hauled in as fast as possible. If a large fish is hooked, it is necessary to be fully prepared for the rush of the captive, which will probably occur just before the snooding comes in sight. I have sometimes been obliged to allow line three or four times before bringing a strong

twelve-pounder to the surface. The best line to use is one of 30 fathoms, leaded all the way along it, as has been already described. Horsehair lines cannot properly be used when fishing alone.

It is most important that the oars should be securely attached by lanyards, made of stout pieces of line, fastened to the gunwale of the boat. Sculling over the stern with one hand and holding the line with the other is an excellent plan, as little disturbance is created in the water. Instead of holding the line it may be fastened by means of two half-hitches to the top of a piece of cane called a "bobber," or "tell-tale," stuck into the aft gunwale of the boat. In this manner two lines may be used, one on each side of the stern, but this plan should only be adopted for small fish. When a bite is noticed, the oars should be dropped, and the fish hauled up quickly, the other line being allowed to sink to the bottom.

In all kinds of whiffing it is always well to be provided with a strong gaff, which should be kept near the stern in a handy position. Always take the first good opportunity of gaffing which presents itself, and endeavour, if possible, to strike the fish in the shoulder, extending the gaff over and slightly beyond it.

As already remarked, rocky ground is the best for whiffing, especially for Pollack and Coal-fish, and for these fish it is almost useless to try over sand. Mackerel, Gar-fish, and Gurnards, however, generally prefer sandy localities, a remark which will also hold good for Bass.

The best time for whiffing is the last of the ebb and the first of the flood, and spring tides are the most profitable. In some districts, such as the Manacles in Cornwall, the ebb tide is the best, but I believe this is an exception to the general rule.

On the South-West coast the autumn is the most favourable season, September and October being excellent months for

large fish. In hot weather the early mornings and evenings should be tried. Mackerel, Pollack, and Bass often bite better at these times than in the full glare of the sun.

Railing.

This method, which is often known as "plummeting," is distinguished from whiffing by being carried on from a sailing boat in motion. It is a favourite amusement with yachtsmen in general, as the enjoyment of a pleasant cruise may be considerably enhanced by that of fishing without any inconvenience. The only condition required to contribute towards success is that there should be sufficient breeze to carry the boat along at a fair pace. Mackerel are the principal fish sought after, but Pollack and Coal-fish are frequently taken when the boat is proceeding more slowly. Occasionally Gurnards, or other bottom-feeders, may take the bait, but these are only exceptional cases.

In Australia the Pike and Barracouta, voracious fish which swim near the surface, are readily taken by lines towed swiftly from the stern of a sailing boat. The bait recommended is a piece of red wood, to which are attached two or three hooks with the barbs filed off. The Australian Pike, which resembles in shape that found in our lakes and rivers, is a most delicious fish when fried, whilst great quantities of Barracouta are smoked for sale in the markets.

Lines and Gear.

Any kind of line, of medium thickness, will answer the purpose, and fifteen fathoms will be amply sufficient. Hemplines are principally used, and they should be fairly strong in order to support the lead. The latter should be of the conical, or sugar-loaf, pattern, which tows more easily and rests steadily upon the deck when hauled in, two important qualifications. The weight of the sinker will depend upon

what rate the boat is sailing, but a 2lb. lead will usually be quite sufficient; sometimes one of 3lb. or 4lb. may be required. Circular leads are often used, having a piece of stout brass wire, with an eye at each end, cast through the centre of them. Sometimes they revolve upon the wire, which is a still better plan. Boat-shaped leads are also employed, but the disadvantage of these is that they swerve in the water, giving a pull now and again to the line which it is difficult to distinguish from a bite.

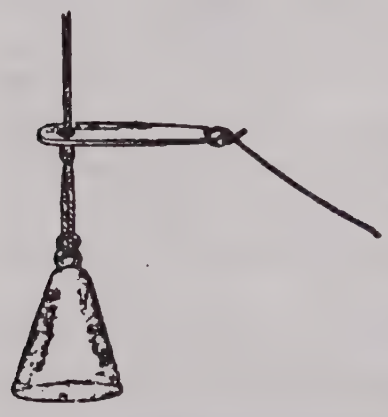


Fig. 69. Plummeting Gear, showing conical lead attached by spliced loop, and boom above it; also portion of Snooding connected to smaller extremity of boom.

Fig. 69 shows the best method of rigging up the line and attaching the lead. The boom is composed of the handle of an old tooth-brush, rounded neatly with a file and a hole bored at each end; the larger one to freely admit the line and the smaller for the attachment of the snooding. At the end of the line a long spliced loop must be formed, and upon a knot above this rests the boom. This will, of course, have to be threaded upon the line before forming the loop and knot.

Put the two parts of the loop through the ring of the lead, open them, and bring them over the base of the lead. Any necessary change can now be easily effected. A piece of wood or leather is sometimes used as a short boom. In Devonshire the fishermen attach the snooding by means of a loose loop over the main line above the lead, but the short boom, as here described, is the better plan.

The front view of the boom is shown in Fig. 70, which more clearly indicates its shape. To the projecting extremity of the boom attach 2 fathoms of fine snooding. This may

consist of hemp or white cotton, the latter being quite strong enough for Mackerel. A single gut collar, of about 1½ yards in length, will complete the gear; but always insert a small swivel between this and the snooding to prevent the Mackerel from twisting it up.

When railing for Pollack a 1lb. lead will be heavy enough for slow sailing, and for large fish the tackle must be extra strong. Whiffing lines can sometimes be used, but those of horsehair are not to be recommended, for if the bottom is hooked the material is liable to be damaged in getting it clear.

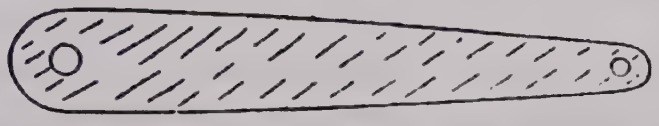


Fig. 70. Boom for Plummeting enlarged, the larger hole being intended to receive the main line, and the smaller for attaching the snooding.

Hooks.

Limerick hooks, Nos. 1½ to 2/0, are the best (Plate I), and they are more attractive when tinned. The hook should not be too small, as Mackerel are more liable to get off, which often happens on account of their lively habits. For large Pollack hooks and baits, as already advised for whiffing, should be used.

Baits.

Undoubtedly the best bait for Mackerel is a "sneed" or "lask," either affixed to a single hook or a hook provided with a spinner. The method of cutting it has been already shown in Fig. 68, the smaller bait being the one suitable for Mackerel. The best bait is one taken from a Mackerel fresh out of the water, as these fish deteriorate very rapidly. Sometimes they are cut off and salted in case fresh baits cannot be procured.

Fig. 71 gives a sketch of the baby-spinner, already described in Chapter VI., with a "sneed" attached to the bend of the hook. If no Mackerel is available, a small Sand-eel or Sprat, hooked through the eyes, may be substituted. Failing these, use a piece of Ray's skin until a Mackerel is captured. Above this one or two flies may be fastened to the cast by short pieces of gut should fish appear to be plentiful.

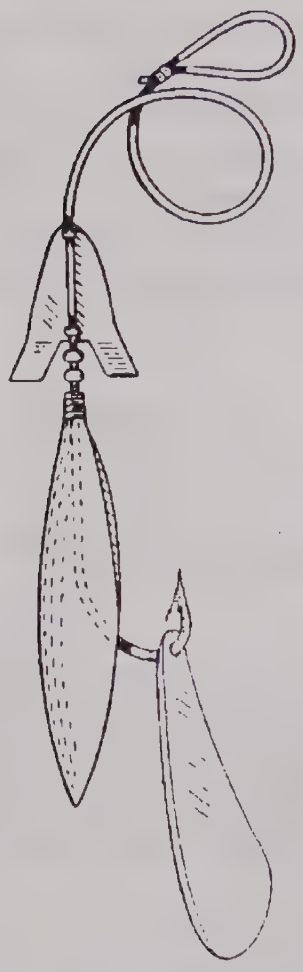


Fig. 71. Baby-Spinner and "sneed" of Mackerel, with large gut loop for connecting the cast or collar.

A piece of the stem of a white clay tobacco-pipe, strung upon the shank of the hook, is an excellent bait and easily rigged up. The hook should be whipped on, and the pipe (about 2in. in length) passed over the gut until it rests upon the bend of the hook. On one occasion we took a great many Mackerel with this bait from a vessel when almost becalmed off the Skaw. A white shell, with a hole bored in it and fastened above the hook, could be tried; in fact, anything bright and glistening which resembles a Sprat or other small fish will have an attraction for Mackerel.

Method of Fishing.

The most suitable speed for plummeting is about five miles an hour, and the boat's sails should be trimmed

accordingly. A wind of this strength is commonly known as a "mackerel breeze." Two lines, one from each side of the stern, are generally employed, and five or six fathoms above the lead will usually be sufficient to pay out. Professional fishermen, however, frequently use four lines, two of them being attached to the ends of "outriggers." These are long poles, or spare oars, placed about the centre of the boat, so as to project outwards from the gunwale on each side. To enable the fisherman to ascertain whether a Mackerel has taken one of the baits, a piece of line is fastened at right angles to the principal line. This is hauled in occasionally, and avoids the trouble of shifting the pole for that purpose.

Off the Isle of Man I have known as many as ninety-five dozen Mackerel to be taken by one boat, each man working two lines. In order to save time in unhooking, the fish is immediately grasped under the left arm on being hauled up, and the hook removed with the right hand. The Mackerel is then dropped and the next line attended to, a work which may continue without cessation for an hour or two. Unless fish are very plentiful the amateur need not trouble about outriggers, two lines being quite sufficient to manage properly.

Always haul in your fish steadily, and take hold of the snood as short as possible, so as to avoid it knocking against the side of the boat. Taking into consideration the rate at which the boat may be sailing there is no need to haul in fast, as by so doing the hold of the hook may be loosened.

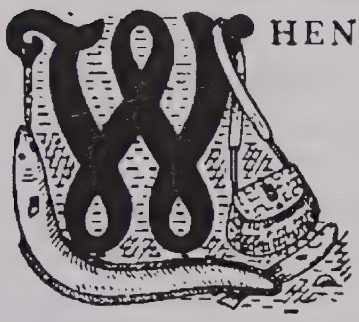
It is difficult to give precise directions as to the best localities to try, because Mackerel are generally scattered over a wide area, and shift their quarters very quickly. If you happen to meet with a scull of the fish go about as soon as they cease biting, and try over the same place again. At most seaside places this sport can be followed during the

summer months, and the early morning or evening is the best time, particularly in bright, hot weather.

When trying for Pollack or Coal-fish, the boat must proceed more slowly, so as to allow the lines to descend nearer the bottom, and only rocky ground will be suitable for these fish. For this method, however, it is much better to fish from a rowing-boat, as the speed is more easily regulated. Sometimes railing is carried on from a small steam launch or motor-yacht, speed being reduced to "dead slow," a most luxurious method for those able to indulge in it.

Chapter X.

DRIFT-LINE FISHING.



HEN whiffing has become impracticable, owing to the strength of the tide, the anchor should be dropped and drift-lining practised. This is a very profitable method in many localities, especially off headlands where the currents are swift, or between an island and the mainland. When the flood tide has acquired its greatest force, it is often impossible to whiff comfortably, and it is in such a case that drift-lining becomes useful, and avoids, of course, the labour of keeping the boat's head against the current.

The same kinds of fish will be encountered as in whiffing, viz., Pollack, Coal-fish, Bass, Mackerel, and Gar-fish. As the lines are lightly weighted, those fish which are inclined to approach the surface or swim in mid-water will principally be taken, though Bream and other bottom-feeders frequently form part of the catch. Occasionally, a large Shark may seize the bait; but although these fish afford good sport, particularly on a rod, it is needless to remark that their presence is not by any means welcomed.

Lines and Gear.

Ordinary whiffing-lines will be quite suitable, and two will be sufficient from each boat. It would be quite practicable,

however, to use four lines when two of the party are fishing with rods. If there are Bass in the neighbourhood, the rod-fisherman may enjoy excellent sport, and there should be 100yds. of line, or even more, upon the reel to provide for emergencies. It should be weighted with a pipe-lead as for whiffing, though sometimes it may be an advantage to use a long, light line when fish are observed near the surface.

Horsehair Lines, and How to Make Them.

On account of their elasticity, which facilitates greatly the playing of a large fish, these lines are admirably adapted for drift-lining or whiffing, and are much used by the Guernsey fishermen. They are expensive and difficult to procure through ordinary sources, but the following directions will enable any of my readers, after a little practice, to make them at home. Black horsehair, taken from a stallion's tail, is the best, and it may be obtained from several firms dealing in this material, amongst which may be mentioned Messrs. Lewisohn Bros. and Co., 10, Bury Street, St. Mary Axe, E.C., or Messrs. Samuel Laycock and Sons, Ltd., Portobello Place, Sheffield. "Drawn" or selected hair should be asked for, which is sent out in bundles, and it should measure not less than 3ft. in length. From the former firm I have procured hair measuring 54in. in length, which came, strangely enough, from the mane of the animal. 1lb. of horsehair will be sufficient for several lines, and the price varies from 3s. up to 10s. per lb., according to length and quality, white hair being more expensive than black.

For "laying up" or twisting the hair, a spinning-jack (obtainable from any tackle-maker) will be required. Besides this appliance procure two pieces of common wood, 1in. thick, and measuring respectively 2ft. 4in. by 4in., and 9in. by 4in. The shorter piece must now be nailed or dovetailed to the longer, so as to project at right angles, and to

the other extremity is clamped the spinning-jack, as represented in Fig. 72. When working, the upright piece of wood must be firmly fixed in the vice of a carpenter's bench, so that the "jack" will be at a distance of about 5ft. from the floor; but it may be clamped to the edge of a shelf, chimney-piece, or anything else that will afford a convenient height for working.

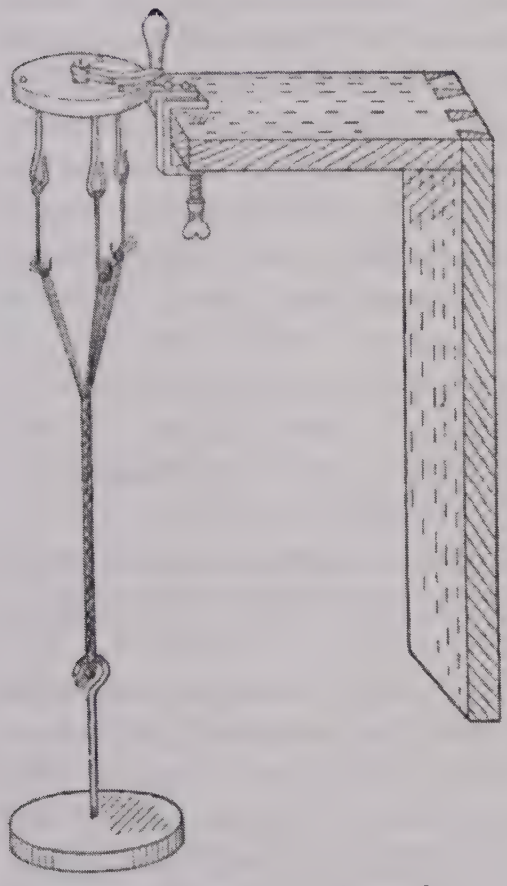


Fig. 72. Spinning-Jack, clamped on to wood, showing leaden weight depending from horsehair length being spun up. The lower portion of wood should be fixed firmly in the vice of a carpenter's bench.

Place the bundle of hair at full length upon a table, and holding the end down by means of a weight or a large book, draw out fourteen hairs by taking hold of two or three at a time. Make the ends quite level, and having cut off with scissors any brown or weak parts, tie a single knot at one extremity. Divide the hairs equally, leaving seven on each side, and hang them on to one of the lower hooks of the spinning-machine. On each of the other two hooks suspend a similar number, prepared as before. If the hair is of exceptional quality, a dozen may be sufficient; but this will depend upon the fineness of line required. For ordinary purposes, fourteen hairs to each strand is the most suitable number.

Now grasp all the hairs near the top with the left hand, and drawing them downwards, to get them level, tie a knot at the bottom with the whole of the ends. A round leaden weight, 3in. in diameter, and $\frac{3}{8}$in. thick, with a brass wire hook fixed in the centre, must now be attached, as here shown. Care must be taken that the hook is not placed between the hairs composing any one of the strands, as this would interfere with them spinning evenly. A kitchen weight of about 1lb. could be used by affixing a brass hook to the top, but the round weight revolves more readily. Having adjusted the weight, place the fingers of the left hand between the strands near the bottom, and turn the handle with the right. As soon as they begin to tighten, raise the fingers gradually, continuing spinning until the whole length has been laid up. When near the top, remove the fingers, and cease turning the handle, upon which the leaden weight will revolve rapidly. Fig 72 depicts the process when the fingers have just been withdrawn from the strands. As soon as it has stopped revolving in that direction, take hold of the weight, and unhook it. Instead of using the fingers for keeping the strands separate whilst spinning, a "top" is sometimes employed; this is a conical-shaped piece of wood having three grooves cut lengthways in the sides at equal distances apart.

Before removing the length, rub it down with the fingers or a piece of leather; then, holding the end firmly near the hooks, detach it, and tie a single knot to prevent the strands from untwisting. Each length should be spun up tightly without overdoing the process, and the hair should be evenly twisted, and present a smooth appearance. "Burning" the hair, as it is called, which is caused by over-twisting, should be carefully avoided.

One-half of the lengths composing the line must be laid up "right-handed," and the other half "left-handed"; this is

performed by turning the handle away from, or towards the operator, as the case may be. Two small arrows should be marked on the wood to indicate the direction of the handle, and to avoid mistakes. To prevent confusion, keep the two kinds of lengths separate, placing them in boxes or other receptacles, labelled "right" and "left."

Horsehair lines should be 22 fathoms long, and 9ft. of white hair may be added to one end. In the latter portion each of the strands should be composed of three hairs less than the black to make it finer. The number of lengths required will depend upon how long they are when spun up

Fig. 73. Forming the Knot for Horsehair Lines, with the end untwisted. Before unlaying, pass two turns over the adjacent length and the left fore-finger; then put the end backwards through them.

and knotted together. It must be remembered that a right-handed length is always joined to a left-handed one, and never two of the same kind together; otherwise, the elastic nature of the completed line would be greatly lessened.

Having spun up a sufficient number, the knotting (which is the most difficult part) must now be accomplished. Hold two of the lengths parallel to one another, and pass two turns with one end over the forefinger of the left hand and the adjacent part. Remove the coils, and pass the end backwards through them (see Fig. 73). Now unravel about 2in. of the end as here shown, gripping the line firmly meanwhile with the finger and thumb of the left hand, just below this point. Straighten the fibres by drawing them gently through the teeth, and transfer the end to the right hand, but always

holding it tightly to prevent untwisting. With the left forefinger and thumb, commence to roll and push the coils along towards the right, at the same time introducing the unlaid portion into the knot. When this part appears in the coil on the right-hand side, and the knot is almost tight, it should be capsized with the fingers. It will then appear as in Fig. 74, which depicts one-half of the knot. The other half is formed in exactly the same way, and they are then drawn together. To tighten the knot, hold all the ends firmly with pliers, and allow a little margin before snipping them off. It may be improved in form by rolling it upon a table or a bench with a piece of flat wood. Always take care that the lay of the line runs tightly into the knot, and that there is

Fig. 74. Half of Horsehair Knot completed, which slides over the opposite length.

no slackness at this point. A bunchy knot, although not so elegant, is better than one in which this fault occurs.

Ten pipe-leads will be required for weighting the line, and they are strung on at every two fathoms, so as to run freely between two of the knots. In Chapter III. the method of casting them was described, and each lead weighs ¾oz. They must be threaded on the line before the second knot is formed. It is a good plan to bore them in the lathe with a drill a size larger than the hole, to make the interior quite smooth for receiving the line.

Fig. 75 represents one of the leads and the finished knot alongside it. Each lead should be engraved with Roman numerals in rotation, commencing with I up to X, according to the example here shown. This may easily be done by

holding the lead firmly upon a bench, and cutting the lines with an engraver's tool or other sharp-pointed instrument. The object of this is that, by glancing at the lead nearest the boat, one can tell in a moment how many fathoms of line have been paid out.

When finished, the line should be provided with a reel, the dimensions required being as follow: Sides, 9in. long, 1⅛in. wide, and ¼in. thick; bars, 6¾in. long, and ⅝in. in diameter. The latter are turned round in the lathe, and fitted into the sides, as described in Chapter II.

To the end of the main line 6 or 7 fathoms of fine snooding should be attached by means of the knot already described, the best for this purpose being that composed of

Fig. 75. Pipe-Lead and finished Horsehair Knot alongside it. Lead should slide freely upon line and has a number engraved upon it.

flax (see Chapter II). Rather more snooding is desirable for horsehair lines, so as to allow for the possibility of hooking the bottom, and the consequent straining of the line itself in getting it clear, which would happen if the snooding were too short for the depth of water. As regards the remainder of the line, it is fitted up with a gut collar as for whiffing, double gut being strong enough for all except the heaviest fish.

Hooks.

Much the same kinds of hooks will be used as for whiffing, and sizes will vary according to the class of fish expected. For Bass and large Pollack, Nos. 6/o to 8/o will be useful sizes; while for Mackerel and smaller fish Nos.

2/0 or 3/0 will be suitable (Plate I.), according to the kind of bait used. In most cases, they should be whipped on to gut, or eyed hooks may be used.

Baits.

One of the most esteemed baits for drift-lining is the living Sand-launce, and these little fish are captured with a seine, or small-meshed net, made expressly for the purpose. At many places around our coast, Sand-eel seines are kept by the fishermen, from whom a supply of bait may be obtained. When captured, they should be placed in a small

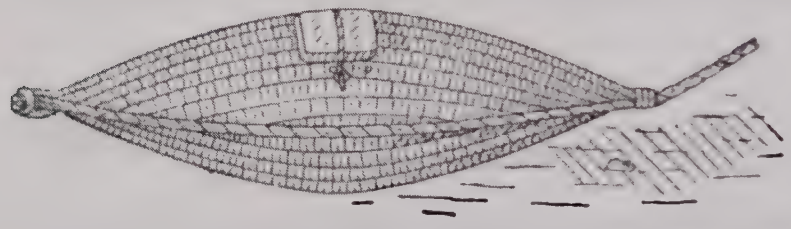


Fig. 76. Courge, or Sand-eel Basket, showing rope by which it is towed near the boat's stern while proceeding to the fishing-ground.

conical basket, called a "courge," as represented in Fig. 76, which is towed overboard until the fishing-ground has been reached. This receptacle is constructed of fine osiers, woven closely together, and has an opening in the middle, covered with a square slab of cork, for removing the fish. The cover should be carefully fitted so that the bottom will coincide with the opening. When required for bait, a few are taken out, and placed in a tin or a bailer containing a little water, leaving the main stock submerged in the basket. They are procurable from Messrs. Hearder and Son, Plymouth, and cost from 4s. 6d. to 6s. 6d., according to size.

A Limerick or round-bent hook, No. 2/0 or 3/0, will be suitable, and the point should be entered at the mouth,

brought out at the gills, and then lightly inserted through the skin of the throat. When the tide is slack, pass the hook once through the nape of the neck, the object in these operations being to preserve the Launce in its natural condition as much as possible. One great drawback to the above method is the difficulty of procuring Launce, and keeping them alive, a serious obstacle in the way of the ordinary amateur.

Fig. 77. Pilchard or Herring Bait for Drift-Line Fishing, the hook being inserted twice as here illustrated.

For heavy Pollack, a Sand-eel, 8in. or 9in. long, forms a capital bait, and it need not be alive. Use a large hook, say No. 8/o or 10/o, and, inserting the point at the mouth, pass it right through the fish, bringing it out at the belly. To prevent its slipping down, put a lashing of thread above the shank. These large Sand-eels are taken with a launcing-hook at night-time (see Chapter V.), and an old fisherman of my acquaintance used to take some fine Pollack with them, baited as above described.

Another excellent bait is a long slice of Gar-fish, the whole side of a Pilchard or a Herring, and a "sneed" of Mackerel is not to be despised. But of all fresh fish the piece of Gar-fish or Pilchard is to be preferred, and it keeps on the hook far better than a live Launce, which is apt to be carried off with the slightest bite. To bait the hook, pass the point once through the tail part, withdraw the shank, and insert it again in the opposite side lower down, as shown by Fig. 77. Sometimes a turn is given to the bait by passing the hook, at its second insertion, through the same side, as is the custom for ground-fishing (see Fig. 64).

A live Prawn, baited by passing the hook once through the tail, is an excellent lure for Pollack, and so are large rag-worms, allowing the tails to hang down from the bend. In baiting the latter, the hook should be passed once through the heads of the worms, and it is most important to use them as lively as possible.

If the tide is running strongly, the rubber eel or Ray's-skin bait may be employed with considerable success; but they will not answer unless there is sufficient current to keep the spinners in motion. The Eel-tail bait, Chad bait, and others recommended for whiffing will be found serviceable at times, and the description concerning them should be referred to.

Method of Fishing.

The best place for drift-lining is off some rocky headland, where good whiffing may be obtained, and the boat should be anchored upon well-known "marks." The length of line to be paid out will largely depend upon the strength of the current. When the tide is running swiftly all of it should be let out, and the end then made fast around the thwart. It is advisable not to allow the bait to sink too near the bottom, otherwise it becomes destroyed by Bream, Chad, or other ground-fish, which are certain to pay it attention if it descends to their haunts. As in whiffing, it is an excellent plan to haul in a few fathoms of line and then cast them overboard again. This attracts any large fish, especially a Pollack, and induces it to swallow the bait.

Always throw overboard from time to time scraps of waste fish, such as the entrails of Pilchards, &c., as these morsels are carried along by the current, and large fish are thereby enticed to the spot. This method is termed "smear," or "smerd," by Cornish fishermen, and pieces of Pilchard or the entrails of this fish are by far the most enticing

for the purpose, owing to the oil or grease which they contain.

If the angler is attending to two lines, and does not wish to hold both of them, attach a thowl-pin or tin bailer to one of the lines, keeping a fathom or two of slack in the boat. When using a rod and hand-line combined the latter need not be held if this plan is adopted, yet the rattle of the tin will clearly show when a fish has seized the bait. One of the pipe-leads on the horsehair line will often be heavy enough to keep the coils inboard, and will act on the same principle. Sometimes, when there is little or no current, horsehair lines are used without any lead whatever, and would often prove serviceable for Bass, Mackerel, or other surface-feeding fish.

Whether fishing with a rod or a hand-line some motion should be imparted to the bait by drawing it in a little and then slackening the line again. The fisherman who works his bait properly will catch many more fish than the one who neglects, or is too careless, to adopt this useful practice.

Drift-line fishing is carried on largely in Guernsey, where the tide rises and falls as much as 40ft., and on account of the exceedingly strong currents whiffing is generally almost impossible.

When a boat or a yacht has reached its anchorage in a harbour a light line fitted with a cod-hook and baited with Pilchard or Cuttle should be put overboard for large Bass, which become attracted to the spot by scraps of food or other refuse which it is customary to throw into the sea about that time.

The flood during the spring-tides is considered the best in most localities for drift-lining, but the ebb tide will also be productive, though in a less degree. As regards tides, local fishermen, thoroughly acquainted with their vagaries, should

be always consulted. When the tide has become slack, the anchor should be raised and whiffing again commenced. The latter end of the summer and autumn will be the best seasons, especially on the Cornish coast, where large Pollack and Coal-fish are in pursuit of the shoals of Pilchards which make their appearance at that time, and upon which the former almost entirely subsist.

Chapter XI.

ROD AND HAND-LINE FISHING FROM ROCKS AND PIERS.

LL amateurs who have neither the time nor the inclination for trusting themselves in a boat will no doubt peruse the present chapter with considerable interest. Judging by the large number of anglers to be observed at any fashionable resort during the summer whiling away an hour or two on the pier-head, there must be a peculiar fascination connected with this delightful pastime. It will be my endeavour in the following lines to impart such information as will tend to the improvement of sport in this direction, and enable the fisherman to return home not altogether empty-handed.

As a rule there is a greater variety of fish to be met with from piers or breakwaters than from rocks, with more likelihood of sport. Rocks, however, are less frequented, and therefore offer special attractions to the solitary angler. The best time for all rock and pier fishing is from low water to about half-flood during the spring tides. The whole of the flood-tide can, however, be fished with success, but the ebb, except in special localities, yields poor sport.

For information regarding rods and tackle the reader should refer to Chapter IV., in which they have been

described at length. The rod should be as light as possible, with upright rings, and the Nottingham winch should carry a line of medium size. Forty yards will usually be sufficient, but for Bass fishing 60yds. to 100yds. should be provided. At the extremity of the line tie a neat single knot, and connect it to the loop of the gut trace by the method shown in Fig. 78. Pass the end through the loop, bring it round both parts, and insert it between the loop and the main portion. By pushing the line backwards it may be undone in a minute. If a more secure fastening is desired, take a couple of turns round the loop before inserting the end.

For most kinds of fish a strong single gut trace of 1yd. to 1½yds. in length will be powerful enough, and will enable the angler to land specimens weighing up to 4lb. To

Fig. 78. Method of connecting end of Reel Line to Gut Loop, a single knot being first tied at the extremity of the former.

deal with larger fish, however, double gut may be required, and occasionally treble for extra-heavy work.

For the smaller fish, where fine gear is an advantage, I have found the "Fina" quality of gut useful, and it is particularly good for Mullet and Smelt fishing. On one occasion I succeeded in landing two Grey Mullet, weighing 3lb. and 4lb. respectively, with a cast carefully knotted from this gut.

For rod-fishing the eyed Limerick hooks of either the "Pennell" or the "Archer" patterns (Plate II.) may be specially recommended, and sizes will vary according to the class of fish. Ordinary Limerick hooks with tapered shanks (Plate I.) are also excellent, but they must be whipped on to gut, as explained in Figs. 35 and 36. For bait-fishing the

round-bend pattern (Plate III.) affords greater ease of manipulation, and is useful for large fish with wide mouths. A few spare hooks should always be carried in a small tin box in case of accidents.

As a guide to the different sizes, reference should always be made to the Plates illustrating exactly the various hooks.

Bass Fishing.

On many parts of our coast this sport is keenly followed, and, from the excitement attending it, has been not unjustly compared with the finest Salmon-fishing. From a precipitous rock on a wild part of the coast the angler casts his spinning or natural bait into the frothy water, and drawing it gently along, so as to resemble some silvery fish endeavouring to escape, induces the wily Bass to make a dash at it.

When a large fish has seized the lure do not check him too suddenly, but allow him to take a fathom or two from the reel before arresting his progress. Bass are sometimes rather long in swallowing the bait, and if any strain is put upon the line may very likely reject it. The most favourable time for sport is when there is a fresh breeze from the sea, creating "white water" or surf close to the rock. A small sandy cove is a good place for operations on a flowing tide, provided that there is a prominent rock at its entrance from which one can throw the bait. In such a locality a Bass may sometimes be observed swimming along close to the rock, and by carefully displaying the bait to the best advantage he may often be prompted to seize it.

One of the most reliable lures is a red rubber eel without a spinner, and the size should be rather smaller than that used for whiffing. This should be cast out as far as possible, allowed to sink, and then drawn gradually to the foot of the rock. If there is much wash, the waves themselves will assist in playing the bait without great exertion on the angler's part.

Amongst natural baits the tail-part of the Pilchard proves almost irresistible, and Fig. 79 shows the hook thus prepared. Pass the point once through the tail-end, turn the hook over, and just catch the barb in the fleshy side. By this simple plan a fish is not so liable to be missed. For large Ground-Bass the head of a Pilchard is excellent, and so are the entrails of this or any other fish.

Fig. 79. Pilchard Bait for Bass Fishing, the hook being lightly caught in the flesh side at the second insertion.

Soft Crab is also a deadly bait, and being easily washed off should be affixed to the hook with a piece of silk or an india-rubber band. A small cod-hook, or a Limerick hook (No. 4/0 to 6/0) will be suitable for this bait.

If Pilchard is unprocurable, a piece of Mackerel, Long-Nose, or Squid will make a good substitute. Mussels or rag-worms will also be readily accepted.

Another capital bait to use when spinning or trolling from rocks is a Sand-launce of moderate size, rigged up as represented by Fig. 80. The larger hook is whipped to double gut and is introduced through the fish, whilst the smaller

Fig. 80. Sand-eel Bait for Bass or Pollack Fishing, rigged up on two hooks, the smaller to prevent its slipping down.

hook (also whipped on just above the shank) keeps the bait from slipping down. It is a very deadly plan to place a

sand or mud-worm upon the point of the larger hook to render it more attractive.

A good method is to wade into the water as far as possible on a sandy beach and cast this bait, allowing it to remain on the bottom. When the tide has commenced to flow a large Bass often comes along in search of dead Sand-eels, and will in all probability discover the bait. There should be several yards of slack line so that the fish may feel no strain upon the bait when carrying it off. When there are rocks in the vicinity, the trace should consist of double gut or fine wire. If there is no current a light line may be used, but when spinning it will be advisable to attach a small pipe-lead just above the trace.

In using the Pilchard bait throw it out and let it sink near the bottom, then draw it up by degrees. Bass swim at different depths, and if there are any in the neighbourhood, such a bait will not remain long unnoticed. Sometimes a large float is useful, and with this arrangement deeper water may be fished. If possible, an assistant with a long-handled gaff should accompany the angler, to land a large fish; and I must here impress upon the reader the necessity for observing caution, as a slip of the foot may launch the sportsman into deep water, a most dangerous predicament in rough weather.

An old fisherman of my acquaintance used to take some fine Bass by placing pieces of Pilchard and other refuse into a bag of fine netting and depositing it at low water. Near this he planted his baited line, to which, of course, the fish were immediately attracted, and as the tide flowed he would be almost certain to meet with success. A rod would in such a case provide much better sport than a hand-line.

Bass appear to frequent rocks and landing-stages in preference to piers; but occasionally fine specimens are taken from the latter places, where the water is not much disturbed by boats. At most seaside places in Cornwall there is some

rock from which Bass may be captured with the rod. Rame Head, near Plymouth, is considered an excellent place for this sport, and Fowey is another capital resort; while Dartmouth, Brixham, Torquay, and Exmouth will provide the Bass-fisher with plenty of amusement. At the Manacles (distant about seven miles from Falmouth) is a prominent rock called the Maen Voces, from which fine Bass and large Pollack are frequently taken. It has natural steps on one side and deep water alongside it, but the amateur must hire a boatman to land him upon the rock. Towards the end of the summer and autumn are the best seasons for Bass-fishing on the South-West coast.

Pollack Fishing.

Around piers or rocks on a flood tide, Pollack, of about Herring or Mackerel size, are often met with, and occasionally a two or three-pounder may surprise the angler. Unlike Bass, these fish are fond of calm weather, and do not relish being knocked about in a rough sea; so an off-shore wind should be chosen, if possible, for this kind of sport.

According to my experience there is no bait equal to rag- or mud-worms (Fig. 42), next to which comes a live Prawn or a Launce of medium size. The latter should be baited as shown in Fig. 80, and should be spun or drawn along as in Bass-fishing. Large Pollack may also be taken with a red or black rubber eel where there is deep water alongside the rock. A piece of Pilchard or the red part of the Spider-Crab are also capital baits. Artificial flies, cast out with a long salmon-rod, and fished very wet, is a favourite mode in some places, especially for Billet or Coal-fish.

Fig. 81 represents the best mode of tackle for this sport. It consists of a No. 5 "Pennell" hook attached to single gut and weighted by two or three large drilled shot, placed upon the line about 18in. above it. Take a piece of fine

copper wire, and having twisted one end tightly below the gut knot, thread the shot upon it. The end A, on the right of the illustration, must now be similarly fastened off to complete the operation. By this simple method the gut is not damaged, and the weight may be reduced or removed entirely if desired. To bait the hook, enter the point at the head of the worm, and bring it out about half-way down. Then select a smaller one and pass the point once through the head. Fig. 81 depicts the hook ready baited.

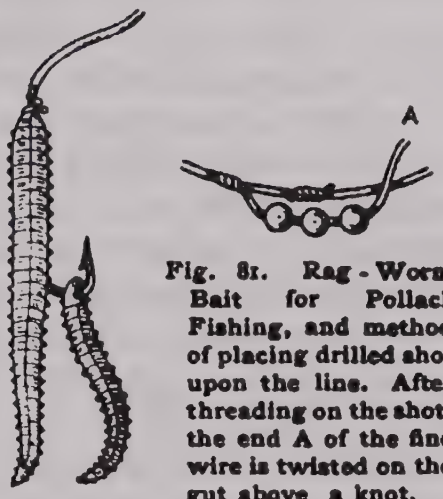


Fig. 81. Rag-Worm Bait for Pollack Fishing, and method of placing drilled shot upon the line. After threading on the shot, the end A of the fine wire is twisted on the gut above a knot.

Another good plan is to enter the hook at the head, and bring it out about ½in. down. Now take another and hook it through the body just below the head. Select a third and insert the point at the shoulder, withdrawing it at the top of the head. This plan entirely conceals the hook, and leaves three wriggling tails for the enticement of the fish. It is most important that the worms should be as lively as possible, and a good large bait is an advantage, as even a small Pollack will swallow it without any difficulty. An excellent tin for carrying worms is sold by Mr. W. J. Cummins, Bishop Auckland. It is oval in shape, and goes easily into the pocket.

In fishing throw the bait out and allow it to sink near the bottom, then raise it a little if no bite is felt. It is also a good plan to draw it by degrees to the surface, stopping at intervals; this will induce a fish to follow the bait, and often at the last moment to seize it. If there is no current one may fish without any lead at all; but it is an advantage sometimes

to have a little to cause the line to descend quickly before small fish have a chance of worrying the bait.

A float is often useful in fishing from rocks, as the current carries the line away from the shore by its aid, and one has a better chance of hooking a good fish. From piers I generally dispense with a float, though some anglers prefer to use one. A simple float may merely consist of a wine-cork, with a slit in the side for receiving the line, but Fig. 29 illustrates a much better kind. If a larger Pollack than usual is hooked, play him carefully until he lies still, then take hold of the line itself and haul the fish steadily up the side of the pier; or guide him round to the landing-steps. From steep rocks a long gaff or a landing-net is useful. Some fishermen use two hooks baited with rag-worms, one attached to the cast about 18in. above the other; but two fish at a time are rarely taken. I have obtained good bags of Pollack in the evening when the twilight almost hid the line from view, after meeting with little success during the afternoon.

Grey Mullet Fishing

The first rush of a big Grey Mullet is an experience to be remembered, and there is no other sea-fish so difficult to hook or which requires so much skill in handling. In order to induce fish to congregate near the spot where fishing is going on, ground-bait should be thrown in occasionally, pieces of Pilchard pounded up being as good as anything. In the Channel Isles a kind of Shrimp ground-bait, called Chervin, is used for the purpose, and bread or paste is also an attraction. If fishing a brackish pond containing Grey Mullet, place the ground-bait in a coarse canvas bag attached to a line, and throw it out where it is intended to fish. In a place thus prepared the night before I had a good catch the following morning, taking twelve fish weighing 13lb. in the space of about an hour. These fish, besides a great many

others at various times, were captured at Swanpool, a small brackish lake near Falmouth. A friend of mine made the extraordinary record of over 300 fish in one season, all captured in this pool, and the largest specimen scaled 4lb. 10oz. He had some of his finest catches in the early morning, but was also successful during the latter part of the day. When the sea water was just commencing to enter the pool seemed to be the best time for taking them. This pool communicates with the sea by an underground drain, and the salt water only flows into it at spring tides. I hear that the sport has much deteriorated of late, partly owing to being overfished, and partly to the introduced swans, which have eaten up all the weed upon which the Mullet appeared to subsist.

Rag-worms are the best bait for Mullet, and those of medium size should be selected. The hook should be concealed as much as possible, leaving two or three short tails hanging down. The tackle I have found best was a single collar of rather fine gut, weighted with three or four shot, and a No. 8 "Pennell Limerick" hook. Excepting the size of the hook, this is similar tackle to that used for Pollacking. Fine wire round-bent hooks, as used in worm-fishing for Trout, are excellent for small fish, but are hardly strong enough for heavy Mullet. With this line I used a taper quill float, which was adjusted about 18in. above the hook; but this should be regulated according to the depth of water. As light a float as possible should be used, so that the fish may feel no resistance when biting.

Other good baits are a piece of Pilchard, earthworms, Soft Crab, boiled macaroni, paste, and a raw Shrimp peeled. From piers or docks a paternoster is often used, which is worked with a sinking and drawing motion. When a shoal of Mullet is detected near the shore, great caution must be observed, and, creeping up, the bait must be carefully thrown so as to alight amongst them. If no disturbance has been

made to alarm them, the float will soon take a sideway motion, and presently disappear suddenly, whereupon the angler should strike smartly. Great patience is often necessary in Mullet fishing, as they are deliberate, and take some time to absorb the bait. When a large fish is paying attention to the bait, a too hasty motion of the rod will cause him to drop it, or only a weak hold upon the lip may be obtained. Always deal firmly with a large Mullet, and maintain a tight hold upon his mouth, if possible, until you can draw him to land, when another person, armed with the landing-net, should place it quietly underneath the fish. Before unhooking a blow at the back of the head is advisable, as the fins are spiny, and injure the hands.

At Plymouth, Penarth (opposite Cardiff), Portsmouth, Dieppe, and a few other places, Grey Mullet are regularly taken. The summer and autumn appear to be the best seasons, but they also feed well in the winter. These fish often become ravenous after food, and on one occasion I took forty-six in about two and a half hours, baiting with small pieces of rag-worm. For large fish brandlings form capital bait when employed in a pond, but would not be so useful in the sea. A Cornish fisherman informs me that numbers of Grey Mullet were attracted to the pier on one occasion by Pilchards thrown overboard from nets, and were readily taken by boys using fine hand-lines.

Pout Fishing.

Whiting-pout, or "Bib," as they are called in Cornwall, haunt piers in large numbers, and often afford capital sport. As a rule they run small, but specimens weighing ½lb. to ¾lb. are not uncommon. These fish feed greedily, and there should be no difficulty in capturing them.

Fig. 82 represents the best kind of tackle, showing the lead and the lower portion of the gut collar. Take a piece

of rather fine copper wire 7in. long, double it and twist the two parts together, leaving a loop at one end. Pass the twisted portion through the hole in a small pipe-lead. Then cut off a small piece of sheet-lead, and having bored a hole in the centre put the ends of the wire through it, and turn them back in opposite directions. The pipe-lead is thus effectually prevented from coming off, and is easily attached to the gut loop by means of the bow at the top. Two No. 5 "Pennell" hooks should be used, the lower one attached 6in. above the lead, and the next about 18in. above it at convenient knots. If the fish are small, No. 8 is a useful size for the hook. A yard and a half of gut will be ample for this method of fishing. For Pout fishing it is much better to use a rod than a hand-line, as commonly employed.

Fig. 82. Single Gut Paternoster for Pier or Rock-Fishing, dotted lines indicating twisted wire by which the Pipe-Lead is attached, and lowest hook.

Rag-worms or Mussels are the best bait, the former being preferable, as they keep longer on the hook. Pout are very assiduous in taking off the bait. Having baited the hooks, cast the line out and lower away until the lead touches the bottom, where it should be allowed to remain. Fish with

a moderately tight line, and strike smartly almost directly a bite is felt. On finishing fishing always detach the lead from the line, and put the latter away in a small case, or wind it upon a flat piece of cork. With the above method I have sometimes taken over a hundred Pout, besides Pollack and other fish, in one afternoon. Usually, however, a lighter line is to be preferred for Pollack.

Cod, Codling, Whiting, Bream, Chad, and other kinds of fish found in various localities can be captured by paternosters, using larger hooks, and making them rather stronger, if necessary, in case large specimens should be encountered. Mussels form an excellent bait, generally speaking, for this class of fishing, and do not come amiss to any of the fish that frequent piers. A strong clasp-knife should always be carried for opening them, and those of medium size are the best, putting the whole of the contents upon the hook. Never crush a Mussel under foot, but open and bait with it as described in Chapter V. (Fig. 41.)

Mackerel.

These occasionally approach piers or rocks, and large ones afford excellent sport for the rod-fisher. For these a float is useful, and the bait should consist of rag-worms or a slip of fresh fish. Raise the float from time to time and draw the bait along to render it more attractive. A small Launce, Sprat, or other silvery fish would be readily accepted, and some motion should be imparted to the bait.

Wrasse.

To the angler these are troublesome fish, and are not often tried for specially; but either of the methods for taking Pollack or Pout will be suitable, provided that the bait is near the bottom. A large float is useful, and care must be taken to prevent the fish from entangling the line amongst

seaweed, which is their usual practice. As these fish have small mouths, always allow them a little time before striking.

Sea Trout, or "Peal."

Sometimes these may be captured with a bright artificial fly, Devon minnow, or small rubber eel. The best places to try would be from rocks in the tidal part of a river when the tide is rising. A friend of mine took one of these fish whilst angling from a rock at Mullion in the open sea.

Smelt Fishing.

These little fish haunt piers in numbers, either during the flood or ebb tides, and may be readily taken with a fine gut paternoster, baited with small pieces of rag-worm, Pilchard gut, Mussels, or Spider-Crab. Three or four Roach hooks, No. 6 size, will be useful, and they can hardly be too small. A drilled bullet, or a small portion of a pipe-lead cut right through, will be sufficient for weighting the line, and the hooks should be placed about 9in. or so apart.

With rag-worm bait much time will be saved, as the same pieces remain good, and are not easily carried off by the fish. Lower this tackle near the bottom, then raise it very slowly to the surface. The Smelts will follow the baits, and will hook themselves during the process. A little ground-bait, such as bread or pounded Crab, should be cast in at intervals to keep the fish near where you are fishing. A light line with single hook is also a good plan, and a small quill float can be employed. This is sometimes baited with a tiny slip of Mackerel or Smelt when rag-worms are unprocurable. Strike very gently on feeling a bite, as the mouths of these fish are extremely tender, and are liable to be torn off by the hook.

Leger, or Throw-out Lines.

This is a method commonly practised from piers and rocks for Dabs, Plaice, Pout, and other bottom-feeding fish. A lead of a flattened shape is best, so that it will rest steadily upon the bottom, and Fig. 83 represents a useful pattern, which should weigh ½lb. to 1lb., according to the current. Attach the end of the line to the brass ring and fasten the hooks above it about 14in. apart, of which three will be

Fig. 83. Leger Lead for Throw-out Lines, with brass ring for attaching the gear.

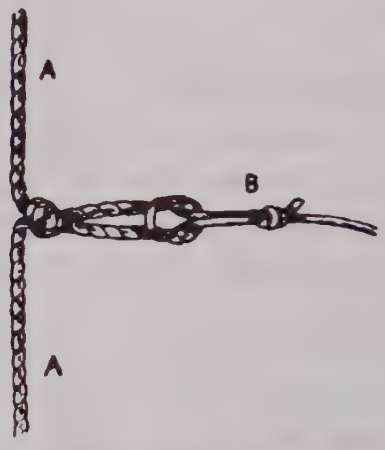


Fig. 84. Method of connecting gut loop to hand-line for Shore Fishing, B indicating the gut link and AA the main line.

sufficient. At the distances where it is intended to place the hooks a knot should be tied, and the gut looped on over it. Another excellent method is shown in Fig. 84, AA representing the main line, and B the gut loop connected with the hook. Make a loop in the main line by knotting the two parts together, pass it through B, and then bring the hook through the former. In order to stiffen it, the two sides of the larger loop could be served over with fine copper wire. This useful plan would be equally well adapted for rigging

up a paternoster, and enables the hook to be easily disconnected. For large fish, snooding should connect the hooks with the main line, and short booms are sometimes useful, which can be kept in their position by a couple of turns of lead or copper wire above and below them. Hooks will vary somewhat in size, according to the fish it is desired to take, but Nos. 5 or 6 would be most useful.

Lugs, mud-worms, and pieces of fresh fish are better than the softer baits, which often become detached from the hooks during the process of throwing out the line. For Bass there is nothing better than a piece of Squid, and a large single hook is the best for these fish.

Having baited and fitted up the line, unwind it from the reel and fasten the end securely to a ring or a large stone. See that the coils are all clear, take hold of the line a little above the lead, and having swung it to and fro two or three times cast it out to sea as far as possible. Be careful that the lead does not become detached during this operation, and make sure that there is nobody standing behind, as an unpleasant accident might be the result.

Large Ground-Bass may thus be taken by throwing the line from a prominent rock in the vicinity of fresh water, or near the estuary of a river. The bait should not be cast upon a rocky bottom, or very likely a loss of gear will result. The sea should be rough or troubled to obtain success, and there must be a flowing tide.

Conger Fishing.

Very fine Congers are captured by the method above described from piers or rocks after dusk, using pieces of Squid or fresh fish as bait. A deep gully between the rocks is an excellent spot to try. Two cod-hooks should be used, attached to the line by strong snoods, which may be plaited together, as shown in Fig. 55, and placed about 18in. apart.

Another excellent method, with which I have taken some fine Congers, is as follows :—To the end of a stout hand-line fasten a Conger-hook rigged up in the ordinary way. Now select a stone of oblong shape, and having fastened it securely around the middle with a piece of twine or thread attach the two ends to the line one fathom above the hook. Take the stone in one hand and the baited hook in the other and cast it out from the pier-head, allowing the whole arrangement to rest upon the bottom. Leave it down for half an hour or so, then haul it up and re-bait the hook if necessary. If the stone should happen to catch amongst any rocks the thread holding it will part, and you will save your gear. A dark night during the flood tide is the best time for this sport. An ordinary Conger-hook will not be too large, and there is no better bait than Squid, Long-nose, or Pilchard. The object of the stone being placed above the hook is that it tends to keep the Conger quiet after it has swallowed the bait.

Chapter XII.

LONG-LINES, SPILLERS, AND BULTERS.

HOUGH the above methods are principally adopted by professional fishermen, yet many yachtsmen and other amateurs occasionally indulge in long-lining as an amusement, or for the purpose of procuring a good class of fish for private consumption. It may be simply described as depositing a line, to which is attached a number of baited hooks which are allowed to remain in one position for a certain time and then hauled up for examination.

Bulters, or "Boulters."

These are long lines chiefly used in deep water, and the principal fish captured by them are Conger, Ling, Cod, Skate, and Ray. Bultering is carried on extensively at Looe, Mevagissey, Penzance, and other Cornish sea-ports, where it is often an interesting sight to witness the enormous catches landed by the fishing-boats and despatched to the principal markets. One boat may carry several hundred fathoms (or even miles) of these lines, which are kept for convenience in separate lengths, each furnished with a certain number of hooks, which are joined together when required. A round-bent

hook, No. 8/o to 10/o, is the usual pattern, and the snood, which is about 10in. long, is composed of several strands of fine netting-twine placed side by side, by which method great strength is ensured.

The snood is made by driving two nails into a piece of board at the proper distance apart, one of which holds the hook whilst the twine is passed round the other. At each turn a couple of half-hitches are made on the shank of the hook, and for convenience the twine is carried upon a netting-needle. Local fishermen use a kind of box, having a piece

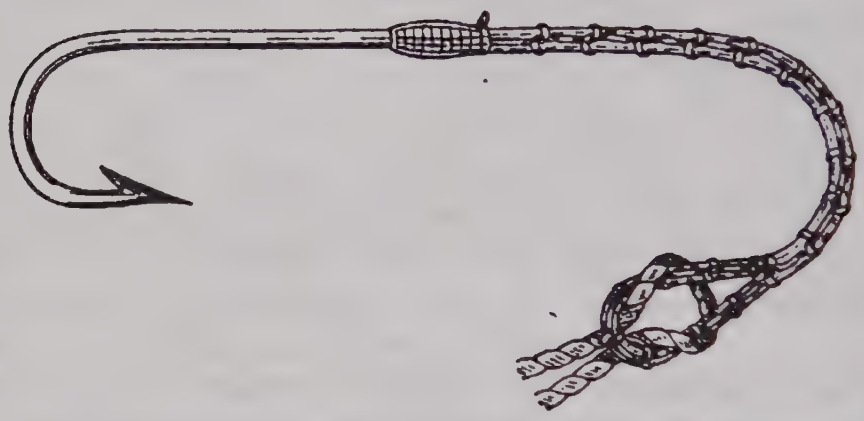


Fig. 85. Bulter Hook and Snood, showing method of "marling" it, and portion of double line by which it is connected to the main gear.

cut out on one side for the reception of the hook, and this arrangement facilitates passing the twine. When the snood is sufficiently thick the several parts are "marled down" with the same twine, which consists of making a round turn and putting the needle over and through the bight so as to form a knot. An interval of about ½in. should be left between each turn as shown in Fig. 85, which depicts the completed hook. Upon arrival near the end the loop is simply formed by adopting the same system, but only enclosing one-half of the strands at each turn, and finishing off at the junction with two half-hitches. Even if one strand

is bitten through, the others will hold the fish; but it is usual to protect them with copper wire for a short distance from the shank. The snood could be made separately and whipped on, or attached by a lark's-head knot to a ringed hook. To the loop a piece of strong line, measuring 28in. when doubled, is fastened as here illustrated. The other two ends are knotted together and fastened to the main line by two half-hitches passed over the knot. Thin tanned rope constitutes the principal line, and the snoods are attached a little over a fathom apart so as to prevent entanglement.

The bait consists of Cuttle, Mackerel, Pilchard, Sand-eels, or Whelks. Buoy ropes and anchors are necessary at each end of the bulter for mooring it in position, and this method of fishing is principally carried on at night on well-known grounds with which the fishermen are acquainted. It is usual to deposit the bulter at low water, and to leave it down for about six hours, thus receiving the benefit of the whole of the flood tide. Seven hundredweight of Conger has been the recorded catch taken by one haul of a bulter in Cornwall.

Spillers and Spillering.

This is really only another name for a long-line, and being constructed on a lighter scale they are more easily managed by the amateur. The main line, or "spiller-back," should consist of stout Conger-line, and 100 fathoms will be a useful length, as it will accommodate 100 hooks placed 1 fathom apart. The distance between the hooks should always be a little more than the combined length of two of the snoods, so that they will not foul. The main line should be carefully stretched and tanned to preserve it. Each hook must be bent on to a separate piece of strong hemp snooding, about 2ft. in length, and the other end securely made fast to the main line at the position it should occupy.

Revolving Head-link.

Small Congers have a particular knack when hooked of lying at full length and then revolving rapidly upon their own axis until the snood is twisted up close to the spiller-back, when they either wrench out the hook and escape or break the connection. To avoid this disagreeable practice the following arrangement is most valuable. Procure from an ironmonger's a small brass wheel, or sheave, about $\frac{5}{8}$in. diameter and $\frac{5}{16}$in. wide, having a hole in the centre and a groove around the outside. Such are used for the pulleys of blinds, and are easily obtained. If the hole is not large enough freely to admit the main line it must be enlarged by drilling it in a lathe or by boring it with a rimer. Now take a piece of medium-sized copper wire, about 6in. long, and bend it round the groove, so that the shorter end projects $\frac{3}{8}$in. from it. At the point where the two parts meet pinch them together with a pair of flat pliers. An eye must now be formed with round-nosed pliers in the longer end A, as shown in Fig. 86, and a No. 2 brass swivel inserted. Holding the eye firmly between the flat pliers wind the end A closely and evenly around its own part and the shorter end as far as the groove, pinching it down at this spot to finish off. This arrangement is placed upon the line as far as necessary, and maintained in its position by a couple of turns of copper or lead wire on either side, as depicted in Fig. 87, passing the ends of the latter through the strands. The snooding is attached to the outer eye of the swivel, and the combined action

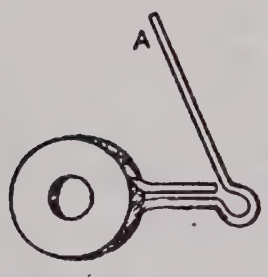


Fig. 86. Revolving Head-Link, showing the copper wire bent round the groove of brass sheave, and eye formed in the longer end. A is now twisted tightly around both parts.

of the latter and the revolving head-link effectively prevent it from being twisted up.

Fig. 87 represents portion of the snood fastened to the eye and hauled taut. By pulling at the end A it may be quickly disconnected, and the operation of unhooking (often a troublesome one) proceeded with at leisure. To make this fastening, put the end twice through the eye, and having tied a single knot upon the main part, put the bight through it before drawing it tight. This is more clearly shown in Fig. 88, which gives an enlarged view of the knot with the last turns loose. Having closed the knot, it will slide up to the eye by pulling the main line. The end may be put through

Fig. 87. Revolving Head-Link completed and placed upon the line, being kept in position by a coil or two of copper wire on either side. By pulling at the end A the snood is quickly unfastened.

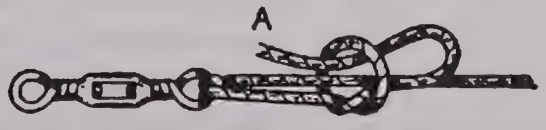


Fig. 88. Method of attaching the Snood, the end being passed twice through the eye, and a running bight introduced within the single knot. When drawn tight, the end A corresponds with Fig. 87.

the eye once only if desired, which will hold firmly enough when wetted. Having procured the brass sheaves, and cut up a number of pieces of wire ready, it would not

take long to make a sufficient quantity, but a little practice is needed to turn them out neatly.

The most useful size of hooks is No. 3/0 round-bend, (Plate III.) having a flattened end or a ring, and they should be tinned. These will take Plaice, Turbot, Gurnard, Congers, and the usual bottom-fish.

Hook-holder.

Unless some system is adopted for keeping the hooks and snoods in their proper order they are liable to become fearfully entangled, and an old fisherman on one occasion burnt the whole spiller in despair after spending two or three days endeavouring to disentangle it. An excellent holder may be made thus: Get a piece of any common wood, 9in. long, 5½in. wide, and ¾in. thick. Mark out with a pencil a number of divisions and make saw-cuts for a depth of about 4in. from one end. Each division should be ⅜in. wide, depending, however, upon the size of the hooks. One side of each alternate bar should be rounded to fit the bend of the hook, and the barbs are protected by contact with the opposite side. The bottom should be tapered off for sticking into the gunwale of the boat, or holding in the hand. Fig. 89 represents this appliance with one of the bars filled up with hooks. When the carrier is full put a lashing

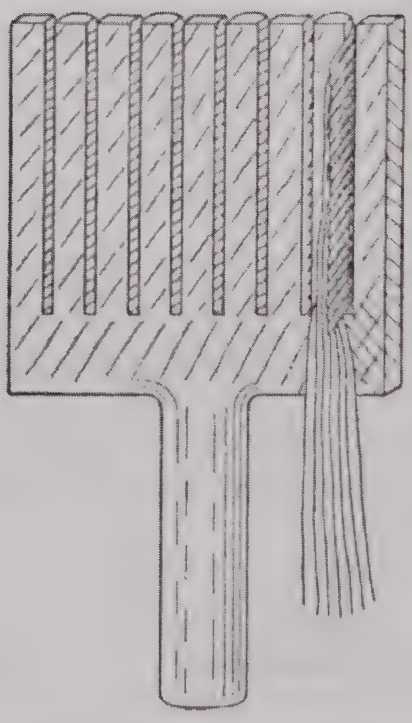


Fig. 89. Hook-Holder, with one bar filled up with hooks.

round the bottom portion to keep the snoods together. To show more clearly the method of fixing the hook, Fig. 90 gives a top section illustrating a portion of this arrangement.

Another good holder merely consists of a narrow, flat piece of wood with a single saw-cut in it, which should be of some length. One of the sides is rounded off as already shown, and the lower part is formed into a handle. After filling this with hooks, the top is tied tightly together, which compresses the sides and prevents the former from shifting. Professional fishermen generally carry several of these holders with them when setting long-lines.

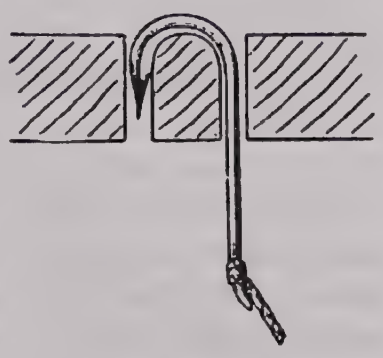


Fig. 90. Top Section of Hook-Holder, showing method of adjusting one of the hooks.

Pieces of Pilchard, Herring, or Mackerel cut up and placed on the hooks as described for ground fishing form good baits. Mackerel is excellent for most kinds of fish, and because of its toughness the hooks are not easily robbed. For Congers there is nothing equal to strips of Cuttle or Squid, the capture of which was described in Chapter V. A fine Conger, which measured over 5ft. in length, was captured on a small spiller set over night, at the back of Haldon Pier, Torquay, and the bait was fresh Herring. Sand-launce should be placed on the hook whole by entering it at the mouth and passing it through the fish. Turbot, Plaice, Bass, and other fish take Launce freely, and I can hardly recommend a better bait. For Turbot, bait should be absolutely fresh, and any small silvery fish, such as Smelt or Launce, will be accepted, which may with advantage be put on alive. Whelks are largely used in the North Sea for bulters or hand-lining. Lug-worms are a good bait on

sandy ground for Plaice, and large Prawns will take Pollack. Earthworms are sometimes useful for Flat-fish, and Rag-worms may be included under the same category.

Setting a Spiller.

Having prepared the line and attached all the hooks at equal distances, arrange them regularly upon the holder (Fig. 89), inserting the lower part into one of the thowl-holes of the boat. Two buoy-ropes and stones must now be provided for each end of the spiller, allowing plenty of rope for the depth in which you are going to "shoot." The buoys are composed of rough, flat fishing-cork, and a piece about 12in. square must first be cut out. Upon this slab place several smaller corks, diminishing in size so as to form a kind of pyramid. Now bore a hole through the centre of them with a red-hot iron, and introduce a piece of thin rope, making a knot at the top and bottom and a spliced loop below. To enable the "marks" to be easily distinguished, it is a good plan to stick a short piece of cane, with a small flag (made of calico) fastened to it, into the hole at the summit of the corks. Attach one end of the buoy-line to the loop below the bunch of corks, and the other to one of the stones, each of which should be about 25lb. in weight.

The following is a simple method, adopted largely by professionals, for attaching a large stone to serve as an anchor for long-lines or nets. Select a stone of a convenient oblong shape, and get a stone-mason to form a round hole near the upper portion. Having spliced together the two ends of a short piece of rope, pass one of the loops through the hole, open it, and introduce the other. The latter will now serve permanently for connecting the buoy-line. The lower loop, just above the stone, should be tied with a turn or two of twine to make it fast, as I have endeavoured to show in

Fig. 91. In Chapter XV. (Fig. 109) another plan of securing a stone is described.

The spiller-back need not be attached to the buoy-lines until just before you are going to "shoot." Having cut up a sufficient number of baits and placed them in the bait-box (Figs. 60 and 61), procure a basket about 18in. square and 1ft. deep. Into this neatly coil one end of the line until you reach the first hook. Remove the hook from the holder, and having baited it, lay it down carefully just over the edge of the basket. Again coil the main line into the basket until you come to the next hook, which must be laid alongside the first, and so continue with all the others, baiting each one in turn. The important object of this method is, of course, to keep the hooks separate from the spiller-back. A strong wooden box, about 1ft. square, without a cover, is also used in some places for carrying a long line or spiller, into which it is coiled to prevent its getting foul. In each side of the box slots are cut vertically about half-way down for the reception of the hooks in rotation, which are thus kept separate from the line, without any danger of entanglement.

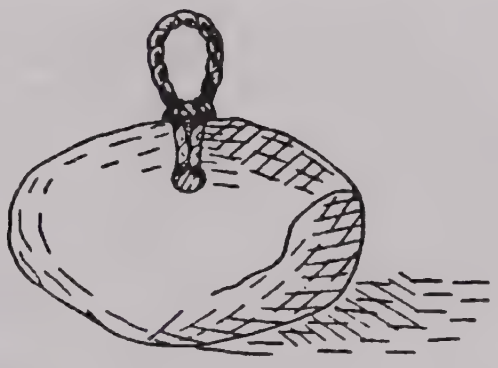


Fig. 91. Attaching large stone for Mooring purposes by means of a short piece of spliced rope.

To set a spiller two persons are needed, one to row the boat in the required direction and the other to pay out the line. Having arrived upon the ground, attach one end of the line to the buoy-rope just above the stone, and lower away to the bottom. Take care that the baits and snoods go out clear, and do not catch in anything. When the stone

has reached the bottom, throw out the corks and continue letting out the line, taking the baits, one by one, from off the basket. The other person must, meanwhile, row slowly in the desired direction until the second stone with its buoy-line is deposited in the same manner as the first.

Fig. 92 will afford some idea of the appearance of one

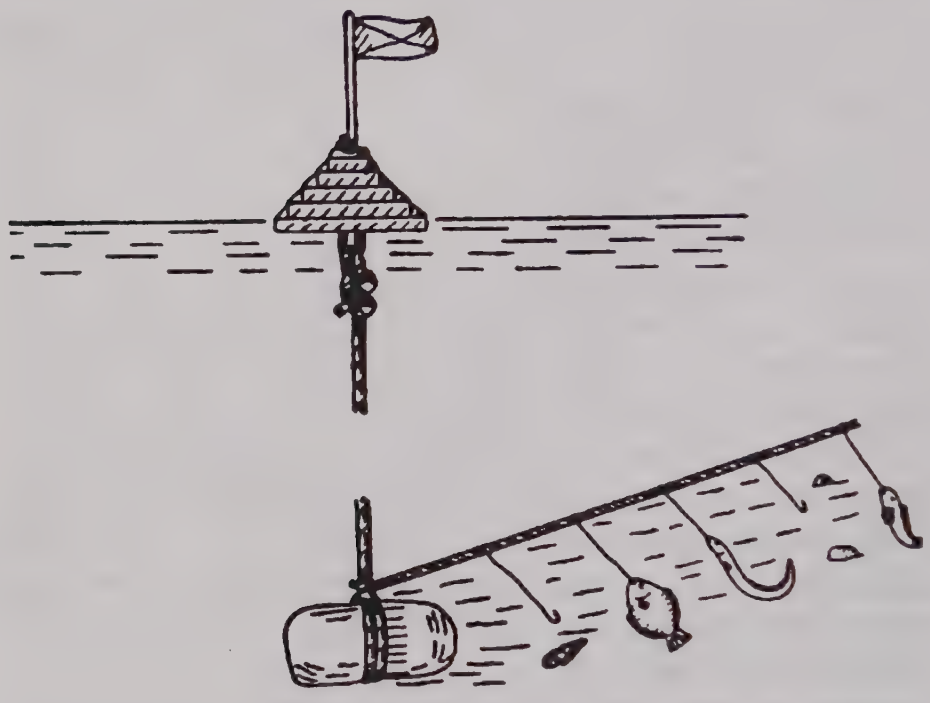


Fig. 92. Spiller set, showing cork buoy with small flag and portion of the line.

end of the spiller while in operation at the bottom of the sea, showing also the "marks" and buoy-line. Leave the spiller down about an hour, not longer, else the fish are very liable to become unhooked. To while away the interval you can land upon a neighbouring beach and have a picnic, or fish with hand-lines until it is time to examine it.

"Under-running" a spiller consists of hauling up one of the stones, and having lowered it again, proceeding along

the line in a boat. The line should be brought in on one side of the boat and allowed to descend again on the other. Any fish that may be caught are removed, and the hooks re-baited when necessary, a procedure which avoids taking up the whole of the gear for that purpose.

Always carry a strong gaff when hauling a spiller, otherwise there is a liability of losing a large Turbot, Bass, or other valuable prize. Never attempt to lift such a fish in by means of the snood alone.

Near the entrance of a harbour is a good locality to shoot a spiller, or in a sandy cove in close proximity to rocks. Spillers and long-lines should always be set across the tide, a method which tends to keep the baits clear of the main line. The best time to shoot a spiller is at low water or during the first of the flood, and the greatest variety of fish will be taken by setting it on the edge of the "row" or rocky ground. In unhooking Flat-fish which have gorged the bait, split open the gills, when the hook may be easily reached.

Floating Trot.

As its name implies, this is intended for surface-feeding fish, and instead of lying on the bottom is attached to the buoy-lines some distance above the stones. It may be arranged so as to fish at mid-water or near the surface. A number of small corks are lashed to the line at short intervals to keep it suspended, and an extra buoy-rope or two, between those at the ends, will be an advantage. The snoods should be 3ft. or 4ft. long, composed of twisted horsehair, with fine hemp snooding or strong gut next to the hooks, the latter being of Mackerel size. A small pipe-lead is generally introduced about half-way up the snood. If stretched across an estuary Bass, Pollack, Grey Mullet, and even Salmon-peal might be taken. Bait with live

Sand-eels, rag-worms, or pieces of fresh fish. This is not such a good method as the ordinary spiller, and would be most successful when set in the evening and allowed to remain all night.

Beach-Line.

When a boat is not available, it is often amusing to lay a small spiller, consisting of about twenty-five hooks, upon a sandy beach from which the tide recedes a long way. A strong hand-line, fifty fathoms in length, will be suitable, and the snoods should be of fine hemp, or white cord, 18in. in length, and placed 4ft. or so apart. Attach a stone or leger lead of 1lb. in weight to one end of the line, and deposit it as near the water as possible at dead low spring tide. Above this fasten the snoods at stated intervals, and carry the line up the beach above high water mark. The line should be slightly weighted by attaching a small stone or two in places, so as to keep it straight. If the baited portion of the line can be taken out a little distance in a boat, so much the better. Use No. 3/o round-bent hooks, and bait with Sand-launce, lug-worms, or pieces of fresh fish. All bait should, if possible, be procured beforehand in order to save time. It is a good plan to carry the snoods and hooks upon a holder, separate from the main line, and attach them when the latter is unwound on the beach. A Bass will sometimes take the lowest bait when covered by 2ft. or 3ft. of water, and by wading in it can be unhooked and a fresh bait put on. Gulls often become attracted by the shining baits, and will carry them off unless driven away with stones. Leave the line down until high water, and then haul it up. I have taken some good Bass by this method, but the Flat-fish are usually rather small.

Instead of laying the line up and down the beach it is an excellent plan to place the baited portion parallel with the

waves, weighting it with stones at each end. The unbaited part is then carried up above high-water mark as usual, and for this method a longer line will be advisable. By this plan the baits are all covered with the waves simultaneously, and are not so liable to become foul of the main line, besides remaining in deeper water for a longer period. For these reasons the second method is even preferable to the first, but either will take a good many fish.

Out-Haul Bulter.

Procure a stone weighing about 25lb., and to the centre attach a large brass ring or a small pulley-block by strong cord or twine. Deposit this at low water as near the water as possible, and pass the line through the ring, bringing the two ends above high-water mark. For this method double the length of line will, of course, be required. Attach the lowest hook about 4ft. from the stone, and the others at the same distance apart on one side of the line. A small piece of wood must be attached close to the ring to prevent the baited hooks from being drawn up to it and becoming entangled. By this method the line may be hauled in two or three times during a tide for examination, and hauled out again by taking hold of the other end.

Instead of a large stone a couple of posts may be driven into the sand at a little distance apart, each having a ring lashed to the upper portion. Near the centre of the line attach a dozen hooks at proper distances apart, and provided with a "stop," as already described, near the end hook. Having done so, pass the longer end of the line through both rings. A second set of hooks should be also fastened near the end of the line, also provided with a piece of wood, to check them from passing through the opposite ring. The advantage of this plan is that when one set of hooks is hauled in for re-baiting the others will, by the same operation, be

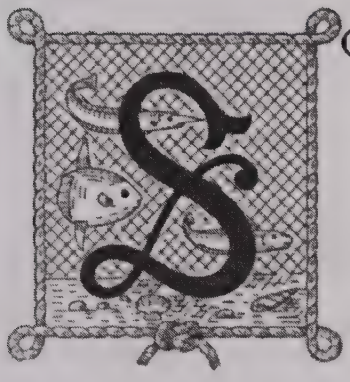
drawn seawards as far as their particular post. Above high-water mark there should also be posts to which the ends of the line may be secured. On the East coast these methods are largely practised for taking Codling and other fish.

Throw-out Lines.

At Romney Marsh and other places it is customary to cast out lines at low water, having a few hooks attached and a leger lead at the end. To enable the fisherman to throw out his apparatus to some distance, a short stick is used having a slot cut in one end. A short piece of line is fastened to the lead, furnished at the other extremity with a button. The latter is adjusted in the slot, and by grasping the other end of the throwing-stick considerable impetus can be given to the lead, which, being released at the same moment, flies out to sea accompanied by its procession of baited hooks. Care must be taken that the coils of the line are all clear upon the beach before casting out the lead, and tough baits, such as Squid or Sand-Launce, would be the best. Sometimes the line is attached securely to a post driven into the sand, which the flowing tide covers, and is thus allowed to remain until the receding tide enables it to be regained. For all these methods a fashionable resort is not a desirable scene for operations, as you would probably become the centre of much inquisitive curiosity.

Chapter XIII.

NETS, AND HOW TO USE THEM.



O far as the chief methods of netting are concerned, they are almost exclusively followed by working fishermen, who are often obliged to face the worst description of weather and brave many dangers in the pursuit of their calling. Nevertheless, yachtsmen frequently resort to netting when prime fish are required for the larder and a supply is difficult to obtain through any other means.

A large machine, costing from £180 to over £200, is now employed at Bridport, Porthleven, and other places for the manufacture of nets, which considerably lessens the cost of production. Only plain sheet netting can be worked by the machine, all others having to be made by hand. The size of mesh is now usually calculated from knot to knot, or across the opening when stretched to its greatest extent lengthways. For example, a 2in. mesh would measure 1in. on each side of the square. When nets were entirely manufactured by hand, it was customary to give only the size of the mesh-peg, and even now no strict rule appears to exist on this important matter.

The Trammel.

On account of its portability this net is one of the best for the amateur, and all kinds of excellent fish, such as Turbot, Soles, or Red Mullet, may be captured by its aid. The name "trammel" owes its derivation to the French "trois mailles" (three meshes), and consists of three nets placed alongside, or parallel to one another. The centre, or "sheet-net," is double the length and depth of the two outer nets, or "walling," so that, when set, a large amount of slack is lying on the bottom. When a fish strikes the obstruction it carries the fine netting through the larger meshes on either side, forming a kind of bag or purse in its efforts to escape. The depth of a trammel is usually about 1 fathom, this

Fig. 93. Trammel-Lead placed upon the foot-rope.

being determined, of course, by the width of the walling. At intervals of 18in. upon the head-rope are strung small rounded corks, about 2in. in diameter, to buoy the net; whilst the foot-ropes are weighted by pipe-leads at corresponding distances apart. The latter consist of two small ropes, one laid up "right-handed" and the other "left-handed," to prevent "kinking," and the leads are threaded upon the lower rope. Fishermen usually weight the centre of the net rather more heavily than the two ends by placing the leads closer together at this part. Fig. 93 represents an excellent trammel-lead which, owing to its rounded form, will pass over the gunwale of the boat without any hitch whatever. It should be $1\frac{3}{8}$in. long, $\frac{3}{4}$in. in diameter at the centre, and have

an opening $\frac{5}{16}$in. across, the weight being 2¼oz. The mould for casting these leads is similar to that shown by Fig. 16, except that the inner cavity and pin are larger in proportion. Lead pipe, cut up into a number of similar pieces, can be used on an emergency.

The centre, or fine netting, is attached to the head and foot-ropes by taking up four meshes on the needle at the same time, and making a "clove-hitch" at equal distances of 6in. The two outer nets are secured at intervals of about 1ft. upon the ropes at top and bottom. "Hanging a trammel" properly is not an easy matter, and the amateur should employ an old hand who has had experience in the business. The rope should be stretched horizontally in a loft for this operation.

One of the best materials is No. 18 Irish flax netting thread for the middle net, and a coarser grade (No. 12) for the walling. This twine, being stronger and more pliable than cotton, will be found to mesh a larger quantity of fish. Fishermen, however, usually employ cotton or hemp, which is "barked" to prevent rotting. The walling is usually made of the best salmon twine. The flax twine (see Chapter IX.) will take more fish when left in its natural condition, and does not require any preservative.

The size of mesh varies according to the kind of fish for which the net is intended. The following particulars, kindly supplied by a Cornish fisherman, will be useful :—

Ray Trammels: 5in. mesh (12 meshes deep), 13in. walling (3 meshes deep). Plaice Trammels: 3in. mesh (16 meshes deep), 12in. walling (3 meshes deep). Pollack Trammels: 2in. mesh (40 meshes deep), 11in. walling (4 meshes deep). The smaller mesh in each case is reckoned according to the width of the mesh-peg or "bar," and only one side of the square is given for the walling. For a net of medium capacity a 3in. mesh, from knot to knot, with 10in.

or 12in. walling, would be quite suitable. A mesh-peg, 1½in. wide, would therefore be required for making the smaller netting. The mesh is usually 3⅛in. or 3¼in. in extent, to allow for shrinking. The walling of a trammel is locally known as "trencher" in Cornwall. A useful length is 25 fathoms, to which it is easy to connect another net of similar dimensions.

When setting a trammel, two hands and a large rowing-boat are required. One man should hand in the net from the quay, while the other stands in the boat to receive it. The net should be clean and free from weed, and the head and foot-ropes must be coiled down carefully in the stern, keeping them a little distance apart from one another. Two large stones, each about 25lb. in weight, are required, with buoy-ropes attached, always allowing plenty of rope for the depth in which you want to "shoot." A large bunch of corks is attached to the other end of the buoy-ropes, with one or two smaller corks lower down to serve as "marks" for the recovery of the net. Trammels should be set upon sand in the neighbourhood of rocks, or on "spotty ground," as the fishermen call it. In the eddy of a large rock is another productive locality. For information as to the recognised grounds local fishermen should be applied to.

On reaching the fishing-ground make the lead-line fast just above one of the stones, and the head-rope 6ft. higher up. Take care, however, not to stretch the net too tight, for the buoy-rope should, of course, bear the whole of the strain. Lower the stone carefully to the bottom and pay out the net at the same time, keeping the lead-line a little in advance of the corks. As the net is being set a strain should be kept upon the foot-rope, and the corks thrown overboard as required. During this operation the assistant should manage the oars, and keep the boat slowly moving in the required direction. It is most important that the gunwale

of the boat should be free from all nails, which will certainly tear or impede the progress of the net. Having paid out all the net, lower the second stone just like the first and heave the "marks" overboard.

Fig. 94 will afford some idea of the trammel when set, a front view of one end being here shown. A trammel should always be set "with the tide," to prevent its bagging or being depressed by the current. When the tides are strong,

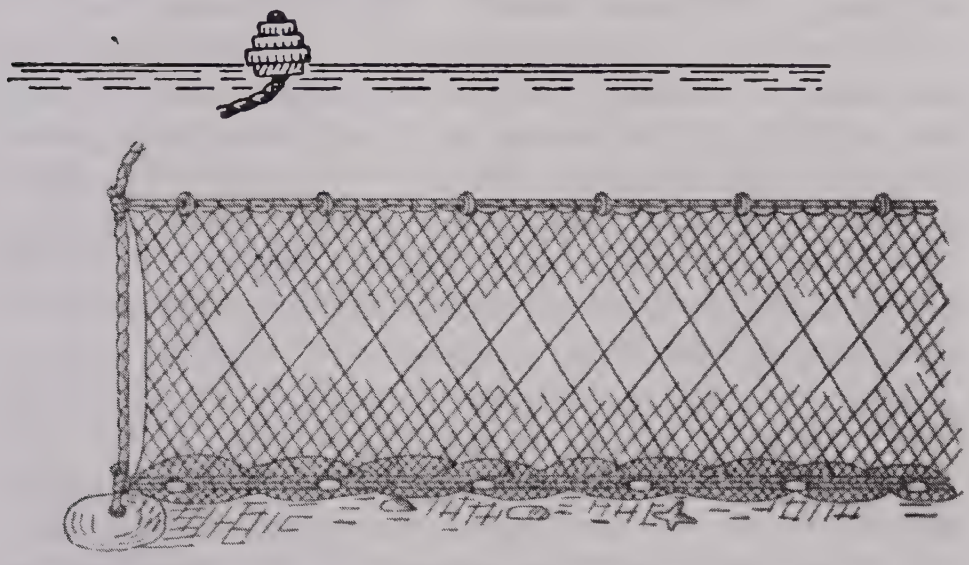


Fig. 94. Trammel-Net, showing front view and Buoy-line, the other end being similar. A large amount of slack netting lies on the bottom.

fishermen often employ two large stones for each buoy-rope; grapnels are also sometimes used. Slack, or neap tides, are the best for setting trammels. During spring tides they are depressed or carried down by the force of the current, rendering them ineffective for taking fish, except for a short space of time, when the tide has eased.

The best time to "shoot" a trammel is in the evening, and it should be examined at daybreak the following day. If left for a longer period a large proportion of the best fish

will be devoured by Crabs, Cuttle, &c., and be useless for food. When brought ashore wash the net overboard and remove every particle of weed; then hang it upon a pier, or spread it upon a beach to dry. A trammel should not be set if bad weather is threatening, as there is a risk of losing it altogether, and it only becomes full of weed.

On a steep part of the coast it is possible to set a trammel from the shore and examine it without the aid of a boat. Select a fine day and lower a heavy anchor about fifty fathoms from the rocks, furnished with a chain long enough for the greatest depth at spring tides. To the end of the chain secure a 6in. block, provided with a strong rope, which, when doubled, will reach well above high-water mark upon the shore. By this means the net can be hauled in for examination and re-set in almost any weather without launching a boat. For lake or river fishing trammels are called flue nets, and are similar construction, but have a mesh of 2in., or even smaller.

Mullet Net.

For the capture of Red and Grey Mullet, Mackerel, small Pollack, and fish of that class, this net is extremely useful. It is often wrongly called a "trammel." In reality it only consists of a single stop-net, and the fish are meshed by the gills. It is mounted upon the head and foot-ropes like the walling of a trammel, and no slack netting is allowed.

A fine material, as recommended for the "sheet-net" of a trammel, is the best, and the mesh should be 1¼in. or 2½in. from knot to knot. If the fish were of larger size a 3in. mesh, when stretched lengthways, could be employed, but it should not exceed the latter dimensions. The net should be 1½ to 2 fathoms deep, and for the amateur 25 fathoms is a handy length. With such a net I have taken two or three dozen of Red Mullet at a single haul, not to

mention small Pollack, Mackerel, and occasionally a small Sole.

One of the best places to "shoot" a Mullet net is on the edge of the rocky ground in about 5 or 6 fathoms of water, and it need not be at any great distance from the shore. At the back of a pier is another excellent spot, and besides other fish it is not uncommon to take a stray Salmon-peal in such a locality.

For directions as to setting the net I must refer my readers to those already supplied for the trammel, the procedure being just the same. It should be set at sunset and hauled the following morning as early as possible. Instead of arranging this net to fish near the bottom it could be secured higher up on the buoy-ropes for surface-swimming kinds.

Drift-Nets.

All round our coasts this important fishery is carried on, and the principal fish sought after are Herrings, Mackerel, Pilchards, and Sprats. Generally speaking, the Herring and Sprat fisheries are carried on during the autumn and winter months, and that for Mackerel in the spring or summer. Cornwall is the principal county for Pilchards, where this industry is followed extensively all through the autumn.

Drift nets are merely stop-nets, and as the fish are meshed by the gills the opening must regulated to the kind for which they are intended. Instead of being moored, as in the case of the Mullet net, they are placed near the surface, and the foot-rope is usually without any leads. In order to prevent the nets from being carried away by passing vessels, large cork buoys, with two or three fathoms of rope, are attached to the head-rope at intervals, which permit the net to sink to that distance from the surface. This method also has the advantage of increasing the chances of taking fish. Drift-nets vary from 3 to 4 to as much as 7 fathoms in depth,

Herrings and Pilchards requiring a deeper net than Mackerel. They are carried in separate lengths, and when joined together a "string" of these nets may extend for a quarter of a mile or more.

The fishing-boats "shoot" their nets at sundown and haul them in the night or the following morning, often proceeding to sea for some distance from the coast to reach the best grounds. After a boat has deposited all her nets the "warp" at one end of the "string" is attached to the bow, and she rides at anchor, though at the same time drifting with the tide. The total recorded catch of one boat, landed at Newlyn, has been 60,000 Herrings, which realised 1s. 6d. per 125 fish. In Mount's Bay it is a picturesque sight to watch these brown-sailed boats, or "drivers," as they are called, stealing out of the harbour in an irregular fleet as evening approaches.

Seines.

We now come to quite a different class of nets, which are used for enclosing large shoals of Mackerel, Sprats, and other fish. These nets often measure 200 fathoms in length by 7 fathoms or more in depth, and the mesh is regulated so as not to admit the escape of any of the fish. The middle of the seine consists of a kind of loose bag, which is called the "bunt," whilst the parts on either side are known as the "arms" or wings." When a shoal of Mackerel is observed the net is quickly "shot" in a semi-circle outside them, two boats, manned by five men in each, being necessary for the operation. The ends of the net are then brought together, and by hauling upon the foot-ropes the fish are raised to the surface, when they are dipped out by baskets. On a favourable coast the fish, instead of being "tucked" at sea, are hauled on to a beach, which is much the better method, as they are not so liable to escape. As the net is being drawn in,

a small boat often proceeds to the opening, and by splashing with an oar the fish are kept from escaping in that direction.

The Sprat-seine resembles that for Mackerel, except that the "bunt" is composed of a very small mesh. After the net has been "shot" it is warped towards the shore by the men in the boats, one party hauling upon each side. A windlass, fitted with hand-spikes, is rigged in the centre of each boat for winding in the rope. During this operation anchors are dropped near the shore by an attendant smaller boat. In order that the net shall be hauled in with the sides level, there are large corks at the centre and also at each end. When the net has been drawn into shallow water, the two parties combine forces, and the fish are gradually brought to the surface by gathering up the bottom of the "bunt."

The Ground-Seine.

On a sandy beach much amusement may be caused by hauling a ground-seine at low water, and various fish will be included in the catch. The dimensions of these seines vary according to the depth of water, but a net 50 fathoms long by 12ft. deep would usually be quite large enough. The head and foot-ropes are corked and leaded, and there is a purse in the centre of the net. To keep the net extended there are poles at each end, the lower portions being weighted. Each of the poles is fitted with a short bridle, to which are fastened long ropes, or "warps," and a large bunch of corks marks the centre of the net. A useful size of mesh would be 1½in. for the purse and 2in. for the "arms" of the seine, measured from knot to knot, when stretched lengthways.

The method of "shooting" this net is as follows, for which operation a large rowing-boat and four hands are required, two remaining on the shore. Having left one of the ropes on the beach the boat proceeds, with the net on board, about as far as the length of rope will permit. The

net is then "shot" in a semi-circle with the shore, and the other rope conducted to the beach so as to be parallel with the first. Grasping the ropes near the water, the men on either side walk up the beach as far as possible, and then take a fresh hold lower down, any spectators being often called upon to "lend a hand." As the net approaches the shore, it is most important that one end should not precede the other, which is easily noticed by the position of the centre corks. When the net appears, the two parties unite, and a man wades into the water to keep down the foot-ropes. The net is now drawn up the beach, and the bulk of the fish will be found at the end of the purse.

Mullet are so active that they frequently spring over the head-rope, and at Slapton the fishermen spread straw upon the water to checkmate these tactics. Sometimes the head-rope is raised, or an extra piece of netting rigged up so as to stand above it. In the estuaries of rivers large numbers of Salmon are captured on the flowing tide by means of ground-seines.

The Beam-Trawl.

This may be described as a capacious bag-net, towed slowly astern of the vessel, and so drawn along the bottom. Soles, Turbot, Rays, Skate, Whiting, Red Mullet, Dories, and many other fish are included in the trawler's catch, besides Oysters, Escallops, and different shell-fish. Fine Crabs and Lobsters are frequently captured amongst the other fish. To the naturalist the operation of sorting the catch on deck is an interesting sight, as many strange creatures are often found mixed up with the struggling mass.

At the mouth of the net is a large beam, varying in length from about 12ft. to 45ft., according to the tonnage of the vessel. Each end of the beam is squared, and fits into an iron socket on the top of the irons or "trawl-heads."

Fig. 95 gives an accurate sketch of one of the "trawl-heads," showing the proper method of rigging it up and portions of the beam and bridle, the other being exactly similar. The cross-bar of iron here shown, which serves to strengthen the frame, is often dispensed with. The upper part of the net is attached to the beam, whilst the end of the "ground-rope" is passed through the large eye at the base, and then secured to the iron. To prevent wear and tear from continually dragging along the bottom the "ground-rope" is closely served over with common rope, which gives it a thick appearance.

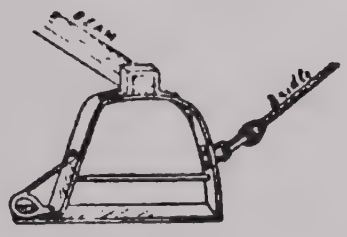


Fig. 95. Trawl-Head, or Iron runner, with portion of Beam and Bridle.

The different divisions of the net are known as the "wings," the "belly," and the "cod-end," the last signifying the extremity of the trawl. The "cod-end" is tied up with rope, which, when undone, releases the fish, and they fall out on the deck. Towards the end of the trawl are two pockets, one on each side, which prevent the escape of the fish when they have entered the net. An arrangement called the "flapper" is also sometimes used, which is a funnel-shaped pocket at the "cod-end" for entrapping the fish, and opens or shuts by the action of the water.

With regard to the size of mesh, not less than 1¾in. on each side of the square is allowed in some districts, whilst in others 1½in. is the regulation size.

Much unnecessary destruction is caused by using too small a mesh. It must be mentioned, however, that although the openings at the "cod-end" may be large enough to allow the escape of small fish, they are often prevented from doing so by a Ray or Skate blocking the extremity.

They also frequently become jambed between two larger fish, and so perish ignominiously. An old piece of netting is generally hung over the "cod" to protect it from becoming torn when dragged along the bottom. Fig. 96 affords a general view of the trawl, with a part of the tow-rope or "warp." The latter is usually made of Manilla rope, which is tarred to preserve it, the net also being thus treated. The

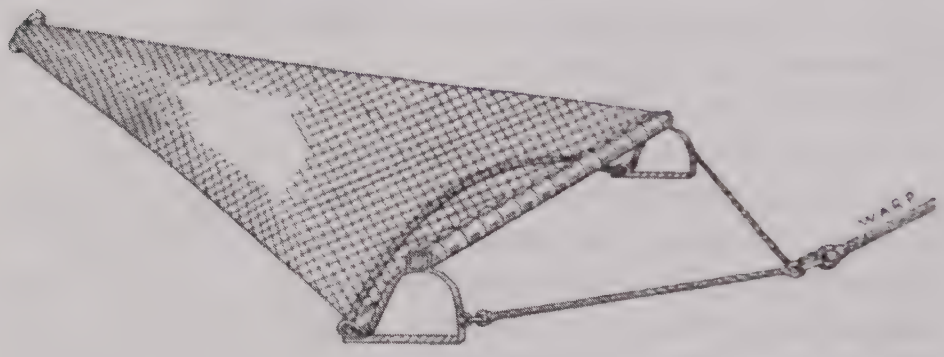


Fig. 96. Trawl-Net, giving general view and portion of the "Warp" or tow-rope. The extremity of the net, or "Cod-end," is tied up with a draw-rope, which, upon being unfastened, releases the contents.

"bridle" is much longer in proportion than it was possible to show accurately.

Brixham trawlers carry a beam 45ft. long, which is slightly curved and spliced together in the centre by four iron bands. The net altogether is about 80ft. long, and a donkey-engine is carried on board for "getting in" the trawl. The usual practice is to "shoot" the trawl in the evening and haul it in six hours. It is then re-lowered and hauled again the following morning.

The Otter-Trawl.

For the amateur this is a much more manageable net, as it packs up into quite a small compass, and the cumbersome

beam is dispensed with. It also has the advantage of following any depression in the ground, and thereby capturing Flat-fish which might be passed over by the beam-trawl. Being much lighter, it requires less power to tow the net, and a cutter 24ft. long or a small steam-launch could manage an otter-trawl of 25ft. to 42ft. spread.

On each side of the net is a stout board made of elm 1¼in. thick, and Fig. 97 will explain how this is fitted. For a net of 15ft. spread the board should be 20in. by 12in.; and for

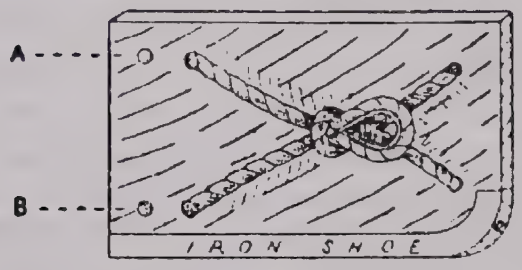


Fig. 97. Otter-Board, showing inside with method of fitting it. The Bridle is attached to the outer eye of the rope, and the head and foot ropes are passed through the holes A and B respectively.

25ft. spread 25in. by 16in. The lower portion of the board is fitted with an iron shoe, let into the wood and fastened by bolts as here shown. Each board is slung by stout ropes, the ends being passed through holes in the wood and then knotted. As will be noticed, one eye, which is provided with a "thimble," is held fast by the other, and to the former the bridle is connected by a shackle. The object in this arrange ment is to cause the boards, or "runners," when drawn along, to sheer outwards and keep the net extended. The head-rope is fitted with a number of small corks, and the foot-rope is weighted at intervals to keep it on the bottom. Near the back portion of the board two other holes are bored, viz., at

A and B, for receiving the head and foot-ropes respectively. In securing the ropes they should be passed through the holes from the *outer side*, thus tending to keep the net extended. The front corner of the board at the bottom is rounded, as here illustrated, to ensure ease of running. Each board is fitted with a long bridle, or "span," having an eye at the end; these are connected by a shackle with the "warp," or tow-rope, in the same manner as the beam-trawl. The bridle should measure about as many fathoms as there are feet

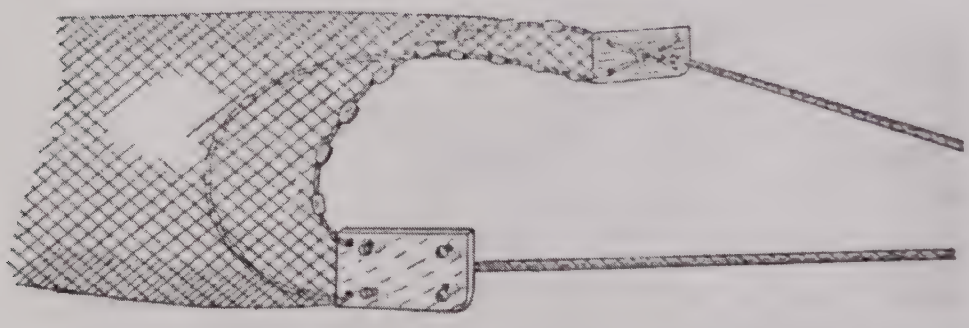


Fig. 98. Otter-Trawl, showing mouth of the net and portions of Bridle.

across the mouth of the net, which will be sufficient for both spans.

Fig. 98 will afford some idea of the otter-trawl, showing the boards and mouth of the net, also a portion of the bridle. The ground-rope should be longer than the head-rope, so that when fish are disturbed and attempt to dart upwards they are stopped by the upper netting. The net itself is composed of strong cord, after the manner of the beam-trawl, and is fitted with two or more pockets to prevent fish from finding their way out again.

It should be noted that trawls cannot be properly worked upon rocky ground, and any obstruction of this nature may result in the loss of the net and gear, as is frequently the

experience of Brixham trawlers. An accident of this kind means a loss to these boats of about £40 if the whole of the gear is carried away, or £10 if the net only is destroyed.

The management of the otter-trawl presents very little difficulty. When lowered, the boards naturally assume their vertical position, and the pressure of the water causes them to sheer outwards and keep the mouth of the net extended of their own accord. It is advisable to let out the tow-rope from the bow and then bring it aft, securing it upon the quarter by a temporary stopping of twine. If the trawl encounters a rock or other obstacle this will part, and the boat's head will be brought round into the wind, thus avoiding further damage to the net.

Under ordinary circumstances, from ten to fifteen fathoms will be a suitable depth, beyond which extra weight will be required on the boards. This is managed by additional iron plates screwed on to the lower parts of the sides. When raised from the bottom the boards close together and the net comes up like a large purse or bag. I am indebted to Messrs. Hearder and Son, 195, Union Street, Plymouth, for kindly giving particulars of the otter-trawl, and readers should apply to this firm for further information and prices of these nets.

Steam trawlers use nets of enormous extent, specially constructed for the purpose, and are superseding sailing-boats in many places. Grimsby, Lowestoft, and Brixham are large centres for the trawling industry, which is carried on all the year round from these ports. In the North Sea most of the fishing is now carried on by steamers, which always tow otter-trawls. The mouth of the net is attached to two ropes, the upper one being 75ft. long, and called the "head-line," and the lower 120ft. in length, termed the "foot-rope." The latter, which is often weighted with chain, drags along the bottom in the form of a large curve. A

greater expanse of net can be drawn with this style than would be possible in the case of a beam-trawl, with more likelihood of large catches of fish. An otter-trawl also requires to be towed rather faster than the beam-net, which is better accomplished by steam power.

Pilchard-Seine.

No fish possesses so much importance to Cornish villagers as the Pilchard, which arrives off this coast in immense shoals, or "sculls," during the autumn and winter. The Pilchard-seine is an enormous net, 180 fathoms long by 9 fathoms deep, weighted by heavy pipe-leads on the foot-rope, and buoyed by large corks on the head-rope. To enable it to be "shot" on rough ground and in deeper water a "ruffle-seine," 3 fathoms in depth, is usually added to the bottom. The lower part of the latter net is weighted by pipe-leads, hanging down loosely, so that if they catch in rocks the twine will break and the net itself will be saved. Great excitement prevails when a "scull" of fish has been sighted, and with shouts of "Hubba!" "Hubba!" the men hasten towards the seine-boat, tumbling over one another in their eagerness to grasp the oars and "go to sea." Meanwhile a "huer," or look-out man, is stationed in a prominent position upon the cliffs, and directs the movements of the boat by waving small furze-bushes, which he holds one in each hand. The man in the bow of the seine-boat watches the signals of the "huer," and should be an experienced fisherman. He should understand the regular procedure just as well as the "huer" himself, otherwise the directions of the man on the cliff may be misinterpreted, and the fish make their escape.

Upon directions to "shoot," one end of the net is lowered, and whilst the boat is rapidly rowed in a semi-circular direction, so as to intercept the fish, the remainder of the seine

is cast overboard by two men in the stern, the whole operation only occupying a few minutes. If the fish have been successfully surrounded the two ends are joined together, or a stop-net is placed across the opening until this can be managed. Neglect of the latter precaution may result in the escape of the fish.

In the evening or on the following day "tucking" commences, provided the weather continues fine. This consists of lowering a separate net within the enclosure, which, when the foot-ropes are hauled upon by the opposite boats, enables the fish to be raised to the surface, when they are dipped out by "maunds" or baskets. The "tuck-seine" is lowered several times until all the fish have been removed. As the fish are taken up, they are placed in boats waiting in readiness to receive them, which then proceed to Mevagissey and other places with their cargoes.

When salted they are arranged in layers, the pressure causing a quantity of oil to exude from the fish, which commands a ready sale. They are then packed in barrels, submitted to further pressure, and afterwards despatched to various markets, Italy being one of our largest customers. Except as regards size, the Pilchard is usually considered to be identical with the Sardine, and is often preserved in tins.

No more delicious fish can be imagined than a fresh Pilchard cut open and fried for breakfast. They are also excellent when "marinaded," a dish much in favour with the poorer classes in Cornwall. The fish are placed in a pie-dish with sufficient vinegar to cover them, and allspice, pepper-corns, and a few bay-leaves added. They are then placed in the oven and allowed to remain all night. Small Congers or Mackerel are often treated in the same manner, cut into large pieces, and the fish is eaten cold.

A good catch of Pilchards may consist of 300 to 500

hogsheads, or even more, each hogshead comprising about 2,500 to 3,000, depending upon the size of the fish. Small shoals, or "shirmers" as they are called, are allowed to pass, being not worth the trouble of wetting the seine.

Excellent fishing with hand-lines may be enjoyed near a moored seine, large Pollack becoming simply ravenous at such a time, and will take pieces of Pilchard on coarse hooks as readily as Chads.

Net-Barrow.

For carrying trammels and other nets down to the landing-stage the receptacle shown in Fig. 99 is commonly employed

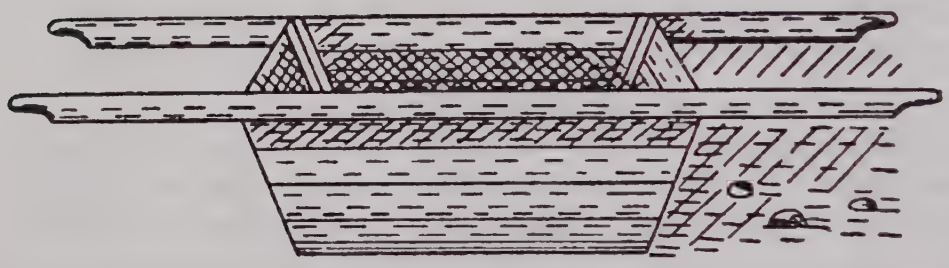


Fig. 99. Hand-Barrow for carrying nets.

by fishermen. It is a small wooden barrow, 32in. long, 18in. wide, and about 1ft. deep, made of narrow planks, and is rather larger at the top than at the bottom. Pieces of wood are securely nailed on the inside at each corner to strengthen the frame. There are two handles at each end, which are fastened along the whole upper portion and project 20in. from the barrow itself on each side. When the net has been placed therein one man walks in front and another behind, and in this manner the weight is easily supported between them.

How to "Bark" or Tan Nets.

Most kinds of nets are tanned or "barked" to preserve the material and prevent its rotting. For this purpose

catechu, or "cutch," is now used, though formerly oak-bark was the preservative employed. For containing the tanning solution a large cauldron or boiler, known by the fishermen as a "crock," provided with a cover, will be required. In preparing the mixture the standard quantity of catechu, or "bark," as it is still termed, is 3½lb. to 12galls. of water, less quantities being in prōportion. The catechu may be added when the water is cold or while it is boiling. When thoroughly dissolved, immerse the net in the boiling mixture, and allow it to remain for about twenty-four hours. The net should then be taken out and dried. While the catechu is boiling, it will be necessary to remove the cover and sprinkle it with cold water. This prevents it from boiling over and wasting. When the net is standing in the mixture, cover it over, so as to retain the warmth as long as possible; but in no case heat the liquid while the former is immersed in it.

Another method is to prepare the ingredients in a large cauldron, placing a fire of sticks underneath it. When boiling, the net is drawn through the liquid by two men, one of whom passes it along, while the other coils it down in a barrel. After the whole has been thus treated, the residue of the mixture is poured upon it. It is allowed to remain as before for a certain time, then spread out to dry in the open air.

Chapter XIV.

BOATS FOR SEA-FISHING.

Types of Boats.

BOATS and boating is a wide subject, rather beyond the scheme of this work, and consequently cannot be treated in anything like an exhaustive manner. Still, as the bulk of sea-fishing is carried on by means of boats, some description of the best kinds of craft to use, together with a few details of special appliances for adding to the comfort and convenience of their occupants, seems desirable.

Where one boat only is used, the best kind, and the one in which the greatest variety of fishing can be done, is the punt. This must not be confused with the long, flat-bottomed, and square-ended punt so much in use on the Thames and other inland waters for fishing and other purposes, for they are as dissimilar as two boats can well be. The punt used at sea is merely a small boat of the ordinary type, clinker-built, and about 13ft. 6in. long would be a useful size. It should have a beam of 4ft. 8in. to 5ft., in proportion to its length, and a good depth.

A piece of American elm, about 1in. thick, rounded off

each way, should be securely nailed all along the gunwale; this covers all inequalities and facilitates the hauling of lines. When nets are used, this useful addition is still more desirable, as the rounded surface prevents any hitch occurring. It is a cleanly and excellent plan to have a bag, made of sail-canvas, to contain the fish when they are caught, which should be so constructed as to occupy the space between the fore and centre-thwarts. This tends to keep the boat sweet and clean, as it can be scrubbed at the conclusion of each day's fishing, and also avoids the unpleasantness of having the fish flapping about under one's feet. A piece of canvas, wide enough to cover the bag, should also be provided; if this is dipped in the sea and laid over the fish they will reach home in much better condition than if they had been exposed to the sun and wind during the run home. Eyelets should be inserted in two sides of the bag, to enable lashings to be introduced for fastening it to the thwarts.

If the fisherman is "long-o'-limb" he will find a hurricane deck a great comfort. It consists merely of a board, about 1in. thick and 9in. wide, laid across from gunwale to gunwale, being kept in position by a cleet nailed on the under side at each end. This arrangement gives the fisherman much more room for his legs, and enables him to gaff his fish with greater ease when he gets them alongside. It is specially adapted for whiffing, but is not available where the fisherman rows himself, as he would be raised too high to use his sculls, or "paddles," as they are termed at sea, with effect. The board should be easily detachable.

After a long day's fishing it is a great relief to be able to hoist sail and run quickly home, and a boat of this kind, if built on proper lines, should sail well. Two "stump" masts, fitted so as to unship easily, and rigged with lug-sail forward and small jib-headed mizen aft, are all the sailing-power required. The larger sail should be a "working,"

not a "dipping" lug. The latter is a dangerous sail in the hands of the amateur, and has to be lowered every time the boat goes about, an inconvenience which is avoided with the "working" lug. The ballast which the boat will require when under sail may consist of large stones from the beach; but the best plan is to have iron ballast, cast to fit the bottom, with the upper surface flat. A light cover of wood will make everything snug and sightly.

I must here again give the oft-repeated warning, "Never make the sheet fast." Instead of belaying the end of the rope in the ordinary way, one turn only should be made, and the bight then introduced. The strain of the rope holds it in position, yet it can be cast off at a moment's notice by pulling at the loose end. The neatest way to capsize a boat is to make the sheet fast, "clap" the helm down, and over you go.

A boat of this description may be easily rowed all day by one hand, particularly if lighter paddles are used than those in vogue on the coast. The best way is to have a pair made by a builder of fresh-water boats, with the blades somewhat narrower and less "dished" than is usual for the purpose; in fact, a sort of cross between the two forms. Brass crutches are far preferable to thowl-pins, as they are not liable to be lost or broken. They should be attached to the boat by a short lanyard, passing through the hole in which they work. If thowl-pins are used, two or three spare ones should always be carried in case of accidents.

It is a safe rule always to proceed to windward in a small boat, as the return voyage can then be easily accomplished. In case of a fog coming on it is most important to keep in touch with the land until it has lifted again. A small pocket compass is a valuable addition to the outfit.

If distant fishing-grounds are visited, or much sea has to be encountered, a more powerful boat, with more varied rig,

will be required. Instead of generalising on this point I will give a description of a boat which was built expressly for the purpose, and in which all kinds of sea-fishing were carried on with the greatest success for over a quarter of a century. The boat alluded to was carvel-built, and 20ft. long over all, with good beam. An illustration of her, taken from a painting, is given in the Frontispiece, which shows her rounding the Manacle Buoy. She was yawl-rigged, and carried a large spread of canvas. The bow portion, as far as the mast, was decked, and this space was used as a cuddy, the remainder of the boat being open with seats round it. She was built after the manner of the quay-punts so much used at Falmouth. Owing to her rig

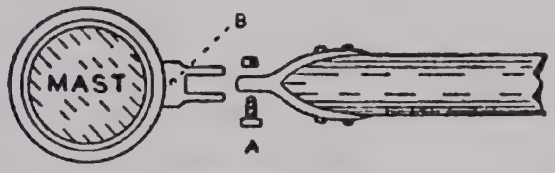


Fig. 100. Method of fitting Gaff, A being iron bolt, and B the ring for Halliards.

she was very easily handled, and was sailed by her owner single-handed for a whole season with great success. But, finding the necessary scrubbing down after fishing somewhat irksome, he shipped a boy of fourteen, who gave all the help that was required. As already stated, she carried a large spread of canvas, the hoist of the main-sail being 16ft. 6in., and it was rarely indeed that this was reefed.

When bringing up for fishing, the following excellent arrangement was adopted for keeping the boat free from sails, and anything that might interfere with the comfort of the party on board. Fig. 100 gives a section, showing the manner in which the heel of the gaff was fitted into the ring which went round the mast. The latter was provided with a socket to receive the end of the gaff, which was then secured

by the bolt A with a nut on the opposite side, so that it would work up or down in the jaw. The letter B refers, by the dotted line, to a small eye to which the main halliards were fastened, and served for raising or lowering the mainsail.

Having taken in the head-sails, the main-sheet blocks were unhooked, and the clew of the mainsail triced up to the mast.

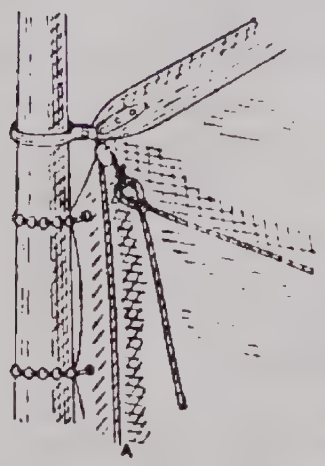


Fig. 101. Tricing-up the Mainsail for convenience in Ground-Fishing. A is the tricing-line attached to the clew of the sail and passing over small pulley-block. The Gaff is then lowered and secured, with the sail, around the mast.

To explain this method clearly, the next illustration (Fig. 101) should be referred to. This shows a portion of the mast, with the gaff in position. The tricing-line A passed over a small block, and was attached, as here illustrated, to the clew of the sail. By letting go the peak-halliards, the gaff was now lowered until it hung alongside the mast, where, together with the sail, it was temporarily secured. By this simple plan the body of the boat was entirely cleared of ropes and sails, and left free for the use of the fishermen; a great boon at all times, but particularly when congering.

Though built only for fishing, she turned out to be a very fast boat, and could keep the sea in almost any weather. This she did equally well with any variation of her rig, from full sail to trysail and small jib, as best suited to the circumstances. As space was an object, a trysail was not carried. When the peak-halliards were let go and the gaff lashed to the mainmast, the mainsail became practically a trysail, and rendered the latter unnecessary.

It is *possible* to live on board a boat like this if the owner is prepared to rough it. When cleared, as for fishing, a tent may be rigged up in the body of the boat by stretching a rope taut between the main- and mizen-masts, and throwing a canvas cover over it. Beneath this, one or more hammocks may then be slung for sleeping purposes. An oil-stove will answer well for cooking. If, however, cruising and comfort are greater objects than sea-fishing, a small yacht, say, about 10 or 12 tons, is the more desirable craft, as in a properly constructed boat of this tonnage every convenience can be secured. But, where fishing and freedom are desired, the writer considers the former the more useful of the two.

Sea-fishing is occasionally done from large yachts, but only as an incident in their career. They usually, however, carry a trammel, which is "shot" over-night when at anchor, to supply fish for the next day's consumption.

Crabbing Boats.

Cornish fishermen, engaged in crabbing and netting, employ very powerful craft, which are constructed after the style of large rowing-boats, and measure about 16ft. in length, with a considerable beam, but they vary somewhat in size. The sails usually consist of a "dipping" lug and small mizen, while they are also provided with long and powerful oars. About the middle of the boat is placed a dividing board, to keep the nets and gear separate from the fish. There is also a wooden roller mounted on the gunwale, over which the rope is passed, and is of considerable assistance in hauling up heavy crab-pots.

Centre-board boats have now largely been adopted by the crabbers, and are considered better for going to windward than those with fixed keels; but during a strong wind seas are rather more liable to break over them.

Mooring Boats.

When bringing up for ground-fishing in a small boat, the best thing to use is a large stone, or "killick," as there is not much fear of its getting fast in the bottom, a contingency which often happens with an anchor or creeper. On sandy ground a flat stone should be used, and upon rocks one of a more rounded form. Light anchors are often employed where the bottom is known only to consist of sand or mud, but they will not hold unless several fathoms of rope are paid out after they have touched the bottom, and an extra length should always be provided.

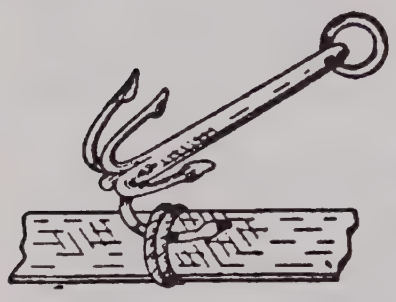


Fig. 102. Method of bending the claw of a "creeper" into its original form.

For anchoring larger boats, such as the one already described, a "creeper" is the best contrivance. This resembles a grapnel, but the claws are more slender, so that, if they become fixed among rocks, they will straighten out, thus enabling the anchor to be raised with safety. In order to bend one of the arms back again into its proper form, take two turns with a rope round the thwart of the boat, as shown in Fig. 102, and introduce the claw beneath the coils. By grasping the shank, considerable leverage is obtained, without which the creeper could not be forced back again into its original form.

For mooring boats in harbours, the following permanent arrangement is usually adopted. A stout chain is attached to as large a stone as can be procured, having a ring cemented into it, or to a heavy anchor; and this is deposited where the boat is to be moored. To the other end of the chain is fastened a cask, previously made water-tight and then tarred.

A smaller chain, called the "bridle," is also attached below the cask, the lower extremity of which is connected by a long piece of rope to a buoy composed of corks, and called the "watch-buoy." A reference to the drawing (Fig. 103) will render this description clear. Upon nearing the moorings, a man runs forward, and quickly lifting inboard the smaller, or "watch-buoy," with a boat-hook or

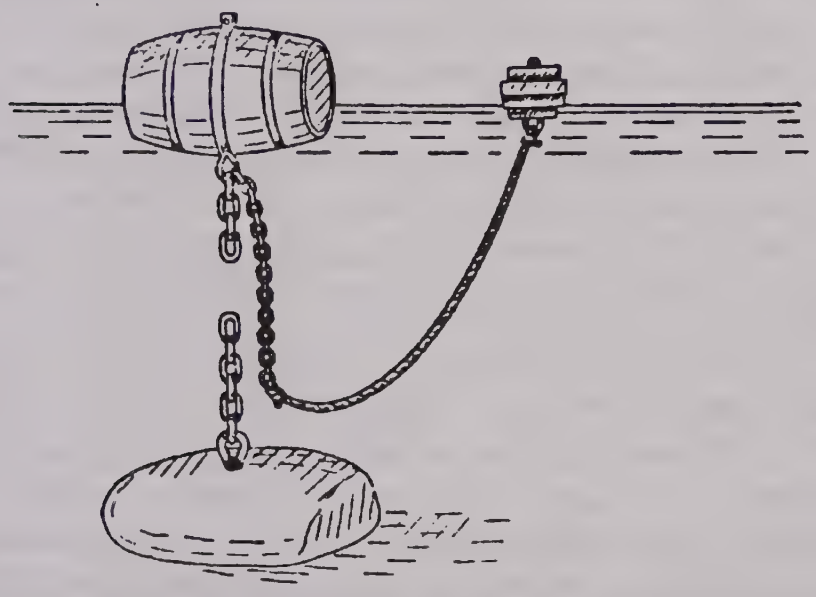


Fig. 103. Moorings for boat, the smaller Buoy being first raised and the chain made fast to the bow.

gaff, hauls upon the rope until he comes to the chain, the end of which is then passed over a hook near the bow of the boat. When not required, the smaller chain hangs down as here depicted, but is, of course, longer than could be shown in the sketch. The cask is often provided with a large iron ring at the top for attaching a rope.

Running Moorings.

In a small harbour this is an excellent method, as it enables the fisherman to haul in his boat from the quay, and

haul it out again when he comes ashore. A large stone, or anchor, furnished with a pulley is deposited at some distance, through which a rope is passed; whilst upon the quay another pulley-block is fixed, so that the parts running between them are double. The boat should be provided with short painters at the bow and stern, and is moored by securing these to one of the ropes. Pieces of old canvas should be always wrapped upon the rope before attaching the painters. By pulling upon the free rope near the quay, the boat can easily be hauled out as far as necessary. The two parts of the rope at the shore end near the block should be secured by a lashing when not in use. Where space is a consideration, fishermen attach several boats to one of these moorings, each having its appointed place. The rope, when properly made fast, passes over the centre of the boat from bow to stern.

Steam and Oil Motors.

Fish are very sensitive to noise as well as to any disturbance of the water, and, as most fishermen know, it is hopeless to expect much success during a thunderstorm, or when artillery are practising in the neighbourhood. Indeed, so much is this the case, that a fisherman who, when whiffing, "sculls" his boat will obtain better success than if he rowed it, all other conditions being the same. We cannot recommend "power" in any shape where the fishing is done from a moving boat; but when the boat is stationary, as in ground- or drift-line fishing, it may be employed with great advantage, either wholly or in part.

In fine weather, particularly in the summer-time, the wind is apt to go down with the sun; and, if the fisherman is too intent on his sport as to disregard the lessening breeze, he may find when he gets under weigh that the wind has fallen altogether. This unpleasant position leaves him at the mercy

of the tide, until the small hours of the morning bring with them a little "cool" which enables him to crawl home.

Steam has the disadvantage of being dirty, and on board a small boat, where it is employed, it is rather too much like living in a stoke-hole for the taste of most people. On the other hand, it is very reliable and easily managed. Oil motors, on the contrary, are comparatively cleanly, but more liable to get out of order; while there is more vibration and speed is not so easily regulated. Our means of locomotion are, at present, in a transition state, and the motor of the future may probably be as superior to that of the present as the modern cycle is to the old "bone-shaker."

Motor Yawl-Rigged Boat.

A friend has kindly supplied the following particulars of his auxiliary yawl-rigged boat, which has been found to be very satisfactory for sea-fishing or cruising purposes. She measures 32ft. on the water-line, and about 40ft. over all, with 9ft. 9in. beam; she draws 6ft. 6in., and the registered tonnage is 12.9. The motor is a 4-cycle petrol of 6 b.h.p., with Simms Bosch magneto low tension ignition, made by the Simms Manufacturing Co., of London, and drives the boat at about 3½ to 4 miles an hour, on about 600 to 900 revolutions per minute, using a three-bladed propeller of 16in. diameter and 11¼in. pitch.

My correspondent says:—"To get the full 6 h.p. out of my motor I should have to run at about 1200 to 1400 revolutions, but this is altogether too fast for efficiency in screw propellers; the limit of speed for efficiency being somewhere about 400 to 500, or less than that, particularly in the case of a boat of heavy displacement proportionately to her size. I can run my motor with my present screw anywhere between about 300 and 900 revolutions, but not less than the former,

and in smooth water, with no wind, she travels rather too fast for Pollack Whiffing.

"In my opinion, for reliability and economy of fuel, a 4-cycle is far and away preferable to a 2-cycle engine. This, of course, refers to petrol engines. In spite of the dangerous nature of petrol, I should prefer it to heavy oil, as the danger of the former can be practically eliminated by proper installation, and a reasonable amount of care in working. The great advantage petrol has over heavy oil is that the engine can be started at a moment's notice, whereas heavy oils must first be heated in order to vaporise them. Electric ignition should invariably be used.

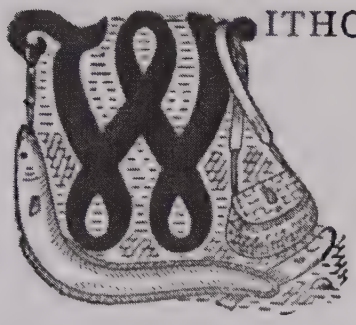
"The difficulty with all these explosion engines for marine work is their very high speed of running, and for fishing purposes their greatest drawback is in not being able to get them to go slow enough; or, putting it in another way, to give out a sufficiently low power to bring the speed of the boat down to Pollack-whiffing pace. The objection might be overcome by the intervention of a speed-changing gear on the shaft, but would be an expensive, noisy, and by no means durable arrangement."

For reaching a distant fishing-ground, however, with a certainty of having on board power to bring one home again, a motor, such as that above described, would prove a decided advantage. Whiffing can, of course, be carried on fairly successfully from a steam-launch going "dead-slow," where speed is more easily regulated than with the motor-engine.

Chapter XV.

KNOTTING AND SPLICING.

Knotting.



ITHOUT entering largely into this interesting subject, a certain acquaintance with knotting and splicing will assuredly prove advantageous to the amateur sea-fisherman, and help him out of many a difficulty.

The simplest of all is the Overhand Knot, shown in Fig. 104, so named from the method of making it. Form a bight in the rope; then bring the right end over the standing part and through the loop. This knot is very useful at the extremity of a piece of snooding to prevent its unlaying. By passing the end twice through the loop, we get the Double Overhand Knot, which, being larger, is much in request as a "Stopper" Knot on a line. The size can, of course, be increased according to the number of times the end is put through the bight.

For uniting two pieces of rope or line, there is no method more universally adopted than the Reef Knot. It has derived its title from being always used in reefing a sail, for which purpose it holds firmly, yet can be undone with great facility. This fastening is also termed the Sailor's or True

Knot, and is represented in Fig. 105. Cross the ends of the rope, placing the right end under the left; then bring the left end round the opposite part, over the other end, and up through the bight thus formed. If the left end is passed under, instead of *over*, the right, in making the second half

Fig. 104. Over-hand Knot, the most simple kind.

Fig. 105. Reef Knot, with turns slack. To commence, the right end should be placed under the left.

of the knot, a "Granny" or Lubber's Knot will be the consequence. This is useless for any purpose, yet it is strange how many people persistently fall into this error. When unequal materials are used, the Reef Knot is undesirable, as it has a tendency to slip.

Another exceedingly useful fastening is that shown in

Fig. 106. Sheet Bend, formed by making a loop in one rope. The other end is then introduced, brought round the back of the loop, and placed under its own part.

Fig. 106, which is termed the Sheet Bend, from its use in attaching the clew of a sail. Make a loop in one of the ropes; then, introducing the other end, bring it round the two parts, and insert it underneath its own part. The end can be passed either way round the back of the loop without altering its efficiency. Fishermen often call this the "Breeder's"

Knot, on account of its being the same as that formed in braiding nets. A friend of mine, an excellent hand at whiffing, always utilised this knot for attaching his gut collar to the fine snooding, and certainly no fastening could be more invisible. Weavers always employ this knot for uniting broken threads, but the method of forming it is slightly different, though the result is practically the same. Unequal thicknesses of line may be joined by this method, for which purpose it is much superior to the Reef Knot.

In Chapter II. two or three other knots have been illustrated, which are equally useful for uniting other materials besides gut.

Fig. 107. Bowline, a most useful method of forming a bight at the end of a rope.

Fig. 107 represents the Bowline, an excellent method of making a bight or bow at the end of a rope, as it has no tendency to slip. Make an overhand loop some distance up the rope, put the end through, bring it round at the back of the standing part, and re-insert it through the loop. When a sailor is required to tar the side of a vessel, he seats himself in the bight, and is lowered down as far as necessary. For greater comfort a piece of flat wood is sometimes arranged as a seat, the end of the rope being passed through a hole at each extremity, and a Bowline then formed a little distance above the wood. If a man, having met with an accident, is unable to grasp a rope, he may be raised by placing one of his legs through the bight of a Bowline, and then binding him round the waist securely to the main rope. He could thus be rescued from any difficult or dangerous situation. When the tide is rising, a boat may be moored by

passing the end of a rope through a ring and then making a Bowline near the boat, allowing plenty of slack. If the tide should have covered the ring or ladder, the knot can still be untied, and by hauling upon the rope the boat is easily cast off.

The Lark's-Head Boat Knot (Fig. 108) is a useful fastening for mooring purposes, being easily undone. A bight is passed through the ring, but instead of bringing the ends

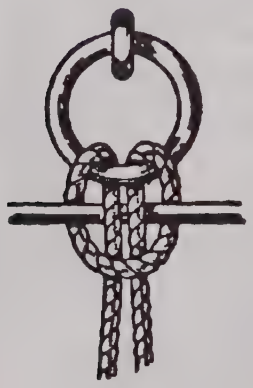


Fig. 108. Lark's-Head Boat Knot. By withdrawing the piece of wood it can be immediately cast off.

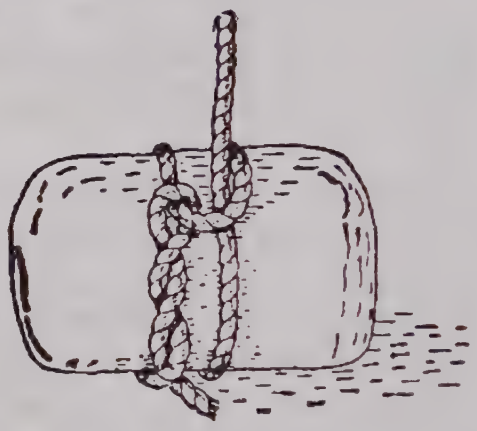


Fig. 109. Killick Bend, showing a secure method of attaching a large stone for mooring small boat.

outwards as in the ordinary Lark's-Head Knot, a thowl-pin or piece of stick is inserted. By withdrawing this the rope can be immediately released. When anchoring a boat, and all the rope is not required, this knot would be specially useful, as it can be used, notwithstanding that both ends are fast.

For slinging a large stone unprovided with a ring the Killick Bend (Fig. 109) is a secure fastening. Pass the end of the rope round the main part so as to form a large loop, and then twist it several times tightly around its own portion.

Now, put the bight round the centre of the stone, and having hauled taut, pass a half-hitch over the opposite side, as shown in the drawing. Without the half-hitch it is often

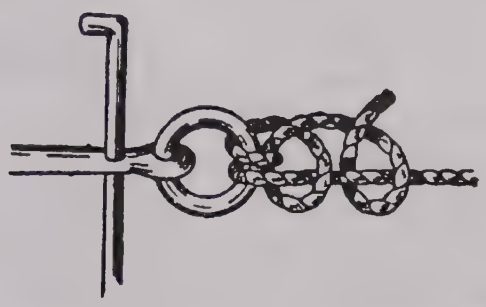


Fig. 110. Anchor Bend, showing end of rope fastened to ring, with the turns slack.

used around a spar or long piece of wood, when it is called the Timber Hitch.

Fig. 110 shows the Anchor Bend, an extremely strong fastening commonly adopted for connecting a rope to the

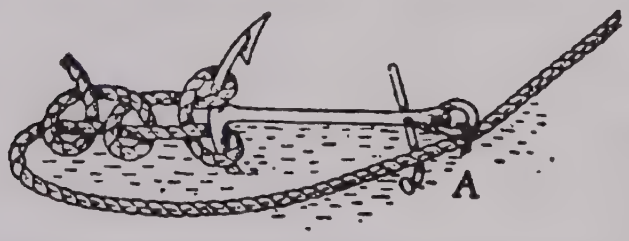


Fig. 111. Scowing the Anchor. The twine at A will break on emergency, and the anchor can then be raised from its position.

ring of an anchor. Having passed the end twice through the ring, bring it round the main rope, underneath the first turn, and finish off with a half-hitch. The knot is now hauled taut and drawn down to the ring of the anchor. If required to be permanent, the end of the rope is "seized"

with yarn to the main portion. For temporarily mooring boats there is no commoner method than to put the end of a rope once through a ring and then to make two half-hitches, to which this fastening bears a strong resemblance.

Crowning or Scowing the Anchor, which forms the motive of Fig. 111, is eminently useful when bringing up on rocky ground, where the flukes are liable to become embedded. Instead of attaching the end of the rope to the ring, a half-hitch is passed over each arm of the anchor and two half-hitches on the main part, as here illustrated. At A the rope is then fastened to the ring with twine, the lashing being only strong enough to support the anchor's weight. In case the anchor should become fixed, the twine at A will break, and the whole strain can be brought to bear upon the crown, thus enabling the fishermen to raise it from its position.

Splicing.

Although one of the most useful things the amateur can learn, it is comparatively seldom that he takes the trouble to make himself acquainted with it. It is hoped, however, that the following illustrations and description may enable my readers to become proficient in splicing. If you can make friends with an "old salt" this would, of course, be a still better plan, as he would probably show you in a few minutes what has taken me considerably longer to place upon paper.

Before commencing to splice, a pointed instrument, called a marline-spike or "pricker," according to whether it is large or small, is necessary. It is either made of copper or steel, fitted into a round wooden handle, being thick at the base and tapering gradually towards a point. Sometimes this implement is combined in a knife, which is a great convenience, as it can be closed when not in use, and carried in the pocket without any danger arising from the

point. Fig. 112 gives an illustration of one of these knives, containing, besides the "pricker," a strong useful blade, and is admirably adapted to the sea-going man. It is provided with a shackle for fastening it to a lanyard, a portion of

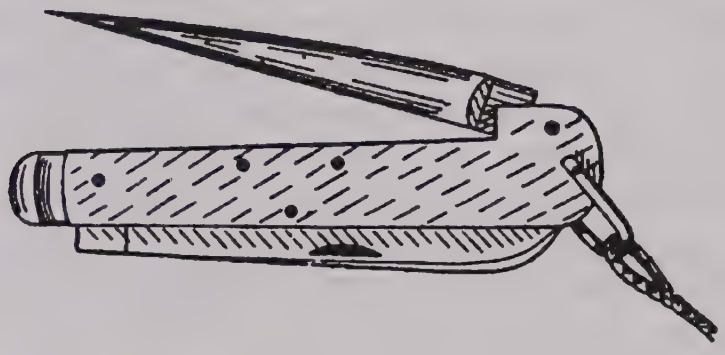


Fig. 112. Yachtsman's Knife, with large blade and "pricker" for splicing.

which is here shown, and this knife is manufactured by Messrs. Thomas Turner and Co., Sheffield, whose cutlery is well known for excellence.

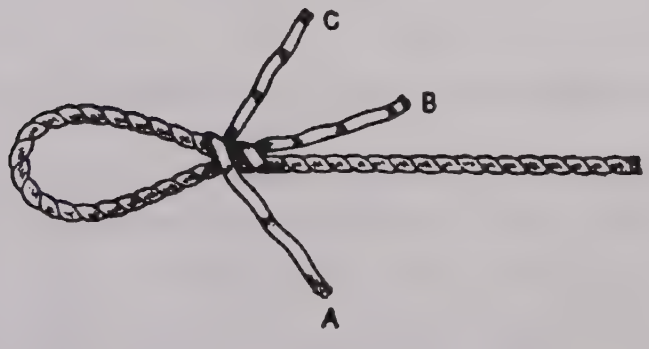


Fig. 113. Eye-Splice commenced, with middle strand B introduced.

When a permanent loop is required at the end of a line for attaching a lead or swivel, the Eye-Splice is undoubtedly the best and strongest method.

Unlay 2in. or 3in. of the end of the rope or line, and bend

it over so as to form a loop of the desired size. Push the "pricker" underneath one of the strands immediately below the unlaid part, and insert the middle strand B through the opening (Fig. 113). In making the opening care must be taken not to interfere with the fibres composing either of the other strands. Now, turning the loop slightly towards you, pass over one strand, and make an opening under the next, inserting C in the same manner. On going back to A, a strand will be found in the main part unoccupied. This must likewise be raised by the pricker, and the remaining end passed through it from the lower side. The rest is easy, as it only consists of making openings and introducing each strand in rotation, always observing, however, to pass over

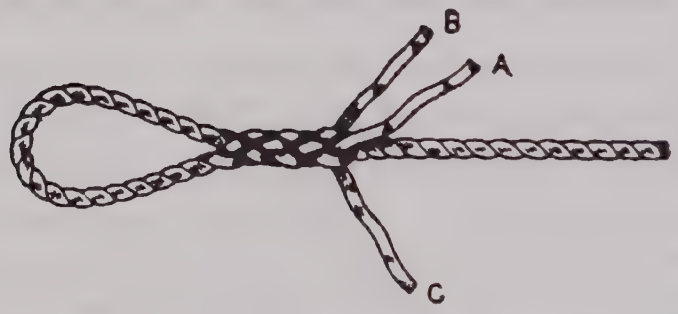


Fig. 114. Eye-Splice completed, before cutting off the ends.

one strand before you bring the end under the following. After the first round, two more will be sufficient; then the ends may be cut off, but not too closely.

The completed eye is shown in Fig. 114 before removing the ends, the letters corresponding with the former illustration. A splice should always be well stretched before cutting off the ends, and it can be improved by rolling it upon the table with a piece of hard wood. To make a neater job, it may be whipped or "served over" below the eye with waxed thread or twine. In attaching a swivel, the end of the line

must, of course, be passed through the eye before commencing to splice.

For uniting two parts of a broken line the Short Splice is a strong method and quickly accomplished. If a certain portion has become worn through continual rubbing against the gunwale, as often happens when whiffing single-handed, the damaged piece may be cut out, and when the two ends have been reunited, the line will practically be as good as new. Or a fresh piece of line may be inserted to take its place, by which plan the same length could be maintained. Unlay the strands of each end of the line for a short distance, and place them closely together, as shown in Fig. 115, one set of strands passing alternately between those of the opposite set. Those pointing towards the left must be grasped

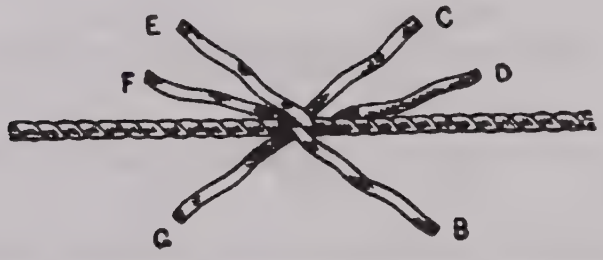


Fig. 115. Short Splice, showing the strands unlaid and placed together for working.

firmly against the main part whilst working with those on the right; but sometimes they are temporarily secured by a whipping. Bring the strand B over E, and insert the end under the following strand, viz., F, in the opposite rope, having previously made an opening for its reception. In like manner, C goes over F and under G, whilst the third strand, D, must pass over G and under E. The principle to be carefully observed is always to omit one strand before inserting the end under the next one to it. Having worked two rounds on one side, the ends must be reversed, and E,

F, and G treated in the same manner, which completes the splice.

When finished, it will present the appearance of Fig. 116, before removing the ends. To make the splice tapered, divide each strand in half and pass this portion only for another round on each side before cutting off the ends. Sometimes the ends are tucked into the main rope by interweaving them with the strands. With ordinary line, however, it is sufficient merely to cut off the ends, leaving a little margin. If desired, the splice may be afterwards whipped to make it smoother.

The Long Splice has the advantage of hardly increasing the size of the line or rope, but occupies more time in making.

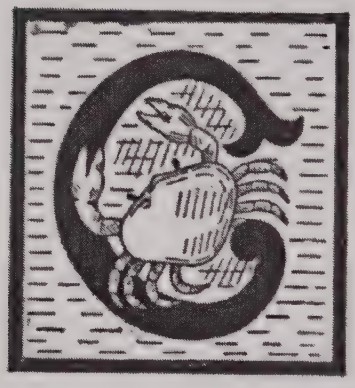
Fig. 116. Short Splice completed, before removing the ends.

Unlay the strands for some distance, and place the two parts together as if you intended to work a Short Splice. Now untwist one of the strands for a few inches, and in the spaces left by its removal lay up the corresponding strand in the opposite rope. Proceed in this manner with the second strand, replacing it as far as the first by one of the other set. There will now remain one of each division in the centre, which must be connected by a Single Overhand Knot, tying it so that the ends project parallel with the "lay" of the rope and not across it. Join the other two pairs of strands with the same knot. To finish off, divide each strand in half, and tuck these portions into the "lay" of the rope in opposite directions after the manner of splicing. When

knotted together, each pair should be worked in this fashion, and the splice well stretched before cutting off the ends. To make a neater job, the ends are sometimes whipped. In the case of small line the ends could be securely tucked into the main part without dividing each strand in half.

Chapter XVI.

CRABBING.



CRABBING is an important industry carried on all round our coasts, the shell-fish principally considered valuable as marketable commodities being Crabs, Lobsters, and Crawfish. Seeing that these shell-fish figure so frequently as delicacies, and are consumed in such large quantities by people in every station of life, some account of their capture will no doubt be welcomed. Amateurs, however, only casually follow Crabbing, and this occupation is almost entirely left to the professional fisherman.

There are many varieties of Crab, some of them very strange creatures, but the kind which principally concerns us is brown on the back and light yellow underneath, becoming red after being cooked. On account of the greater size of its claws, the He-Crab fetches the highest price, and some specimens attain huge dimensions. She-Crabs, however, are excellent to eat, and bring remunerative prices in the London market. Locally fishermen only obtain about 3d. apiece for them; consequently, the small ones are often used for bait or thrown away.

The Lobster is highly esteemed as a delicacy, and before being boiled its colour is blue. "As red as a Lobster" can,

therefore, hardly be regarded as a strictly accurate expression. In Australia a curious kind of Lobster is found, which is pale pink or flesh colour, and of a slightly different shape from our Lobster. It is called the Murray Lobster, and inhabits the large river of that name, though I believe it is a rare species. On parts of the Australian coast Lobsters appeared to be almost unknown, but Crawfish were particularly abundant.

The difference between a Crawfish and a Lobster is easily recognised, not only by the colour, but by the fact that the former possesses much smaller claws than the latter. Besides, the head of the Crawfish is rough, and covered with excrescences, whilst that of his relative is comparatively smooth. On one occasion I took an enormous Crawfish upon a hand-line, and was obliged to seize it by the long horns or feelers to lift the creature on board. It is not unusual to take specimens of these desirable shell-fish while ground-fishing, if the bait has been allowed to remain for some time on the bottom. Even a fine Crab may occasionally get the line caught around its legs or claws.

Both Lobsters and Crawfish attain a large size, and specimens have been known to weigh over 11lb. In the *Strand Magazine* of December, 1903, mention was made of a Lobster captured in America which scaled 17½lb. One of its enormous claws was fitted with a handle and fashioned into a violin, from which sweet music could be produced. As a rule, however, the Crawfish is larger than the Lobster, and the flesh is not so highly valued by competent judges. The former are often called "Crayfish," but, properly speaking, this term applies to a small creature which lives in streams and rivers, and resembles a miniature Lobster. The French call them "Ecrevisses," and they are greatly esteemed as dainties for garnishing any important dish.

Crab-Pots.

At most seaside places these wicker traps are familiar objects, and Fig. 117 represents one of them, with a small portion of the buoy-line attached. The usual size is about 2ft. 6in. in diameter, with an opening 8in. across, and they are constructed of osiers plaited or woven together. Crab-pots are sometimes made of galvanised iron, but professionals, who ought to know, always prefer those composed of wicker-work. For convenience of stowage, the bottom may be made separate, and then secured to the bars in three or four places by means of galvanised iron wire. By detach-

Fig. 117. Crab-Pot with small portion of buoy-line, the three stones for mooring it being attached to the side-bars at the bottom.

ing the bottoms, the upper portions could then be packed one on the top of the other, a great saving of space.

A knowledge of basket-work is required for making a Crab-pot, and the amateur could always obtain one or two from the fishermen themselves for a few shillings. It might be mentioned that the cost of a Crab-pot, including the necessary gear, would be about 5s., and they are made by the crabbers during the winter months. As shown in the sketch, the bottom of the pot is weighted by three stones of moderate size, placed close to the sides and at equal distances apart.

These are secured round the middle by a piece of line, the ends of which are then made fast around the bars in opposite directions. Instead of stones, three bricks are sometimes used, which, owing to their shape, are more easily fastened.

Besides this apparatus, a buoy-rope about 20 fathoms in length should be provided, furnished at the upper end with a large bunch of corks, called the Crab-pot "marks." This consists of a number of corks, in the centre of which a hole is bored with a red-hot poker, and the rope passed through them. Fig. 118 shows a buoy of this kind, and the rope is knotted at the top and bottom to keep the corks together, while below there is a spliced loop for the attachment of the main rope. Along the rope, about 4 fathoms apart, three smaller bunches of corks should be attached, so that, even if the uppermost buoy should be carried away or lost, the pot may still be regained at low water. Crabbers usually cut their initials upon the top cork, to enable them to recognise their own "marks."

Fig. 118. Cork-Buoy, with knotted rope at top and bottom, and large spliced loop below.

When using one pot, fishermen generally attach the end of the buoy-rope to the bar near the mouth, sometimes inserting a "becket," or short piece of line. In Cornwall, however, it is now the custom to set a "string" of pots, connected together with 20 fathoms of rope between each, and furnished with a buoy-line at both ends after the manner of a bulter. In this case the rope is made fast to the third bar down, and the pot, therefore, comes up sideways. Although it thus offers less resistance to the water, a Lobster or a Crawfish will sometimes succeed in making its exit. For those largely

engaged in crabbing the latter method is better, as it saves time and gear.

For baiting a Crab-pot all kinds of fish are used, which is cut open to disclose the inside flesh. Even prime fish, such as Turbot, is sometimes utilised, and trammels are often set for the special purpose of obtaining a supply of Pollack and other fish. Rays are a favourite bait with Cornish crabbers, but, being marketable, are not so much used as formerly. When cut into portions, the bait is transfixed upon sharp-pointed pieces of stick, thrust through the bars at the bottom of the pot. Crabs prefer fresh bait, but Lobsters and Crawfish do not object to its being stale. The best place to set a Crab-pot is on a patch of sand between rocks, or in their vicinity. Crabbers have special "marks," with which they are well acquainted from long experience, and these fishermen know the bottom of the sea almost as well as dry land in their own particular locality. They are, therefore, the best men to employ for sea-fishing when not too much engaged in Crabbing, though it is not always possible to obtain their services.

A Crab-pot should be left down one night and hauled the following day, the most favourable time for examining it being at low-water slack, as then the corks are easily visible. Crabbers often go out at 3 or 4 o'clock in the morning to haul their pots, and I have known a fisherman who frequently examines sixty before breakfast, and afterwards may have to do a long day's fishing.

In removing a Crab, always keep the hand towards the hinder part of the back, and as far as possible from the terrible claws. It sometimes takes two men to deal with a large Crab, which often holds on tightly to the bars, and a blow on the claw is required to disengage it. A Lobster should be grasped immediately behind the claws at the back of the head, when it cannot use its means of defence. On

account of its apparent inability of releasing its hold, a Crab can inflict a much more severe bite than the Lobster. It is usual for Crabbers to "nick" the claws to prevent Crabs killing one another, which is done by cutting the muscle at the junction of the pinchers with a knife. Notwithstanding this precaution, however, a Crab can still pinch the hand pretty severely.

Lobsters and Crawfish are particularly pugnacious, and it is no uncommon thing to catch one of the former, minus a claw, and occasionally deprived of both from being engaged in some deadly conflict.

It should be mentioned that the bye-laws in most districts prohibit the retention of any Lobster which measures less than 9in. from the tip of the beak to the end of the tail, when spread out flat. Those which are carrying spawn, commonly known as "berried," or "seed" Lobsters, are also protected from being removed.

The usual limit for edible crabs is 5in. across the broadest part of the back, and, like Lobsters, they should not be retained when in spawn. These remarks refer likewise to those which have just cast their shells, and are in a soft condition. Spider-Crabs, which have been already mentioned in Chapter V. as being so numerous in some places, have rarely any marketable value as food, although the Channel Islanders, French, and a few of our own fishermen eat them. Consequently, there is no strict regulation as regards size.

The Crab-pots used by French fishermen are constructed like a barrel, having hoops covered with strong netting, and are collapsible. The entrance is at the end instead of the top, and the bait is suspended from the centre. Large quantities of Crawfish and Crabs are sent to France, but a fisherman informs me that Lobsters do not meet with a ready sale in that country.

Store-Pots.

These are constructed like ordinary Crab-pots, and are used for keeping Crabs and other shell-fish alive until the fishing-smack makes its appearance, and they can be disposed of. They measure nearly 4ft. across at the bottom, with an opening 8½in. in diameter, and are moored somewhere near, so that they can be hauled up and the contents removed notwithstanding bad weather. Some are made entirely of galvanised iron, but they generally consist of wicker-work.

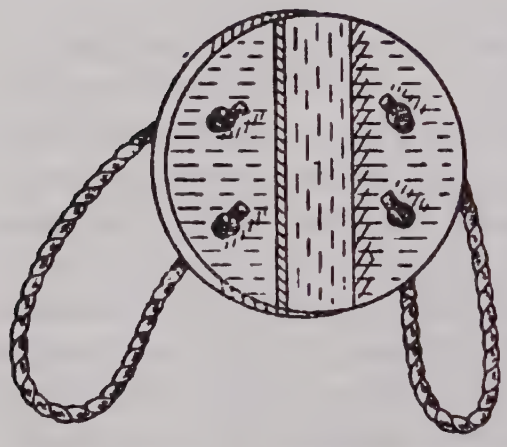


Fig. 119. Cover of Store-Pot, showing method of attaching ropes for retaining it in position.

In order to keep the contents safe, the mouth of the pot is provided with a round cover, and Fig. 119 shows this arrangement. It is made of wood, 1¼in. thick, with a cross-piece nailed to the upper part, and should accurately fit the opening. On each side are two pieces of rope, which are first introduced between the bars on opposite sides of the mouth of the pot, and then through holes in the cover as here depicted, the ends being secured by knots. The ropes are drawn out equally, and when the cover has been placed in position, a Reef Knot is tied with the ends on each side, which hold it down firmly. Sometimes the cover is made of basket-work, having a hinge on one side, the other being fastened with a peg.

If Crabs and Lobsters are kept too long in a Store-pot they are liable to become poor, although their outward appearance

is the same. A Crab should be always weighed in the hand before purchasing, and by this plan alone can its value be ascertained. These shell-fish should always be placed into absolutely boiling water for cooking to avoid unnecessary cruelty, and in Billingsgate they are usually punctured first with a sharp-pointed instrument, which practically kills them. The quickest method of killing a Crab is to lift up the flap of its tail, and by piercing the centre with a knife, it is immediately and humanely despatched.

Very fine Crawfish, as well as Crabs and Lobsters, are often captured in trammel-nets, and also in trawls, to the former of which they are attracted by fish already caught, and by walking about become entangled themselves. Crabs especially commit great havoc with the twine in their endeavours to escape, and are with difficulty removed.

When anchored in foreign ports sailors catch numbers of Crawfish by lowering to the bottom a round net, baited with a piece of salt pork. After leaving it for a while, it is hauled up steadily, and as likely as not the fisherman will be rewarded with boiled Crawfish for supper.

On many parts of the coast, where the rocks extend to some distance from the shore, Crabs and Lobsters may be drawn out of their holes by means of a long gaff. This should merely consist of a strong stick, about 5ft. in length, having a large hook lashed to the end, the barb being filed off. Armed with this weapon, the fisherman proceeds along the edge of the rocks near the water, and thrusts it as far as it will go into any likely hole he can find. When he feels a Crab, the hook must immediately be brought into play, and the creature dragged out before it is able to settle itself firmly in its hiding-place. A considerable knowledge of the locality is necessary, otherwise much time might be wasted in searching for their usual haunts, and this method can only be followed with success at extreme springs. The most

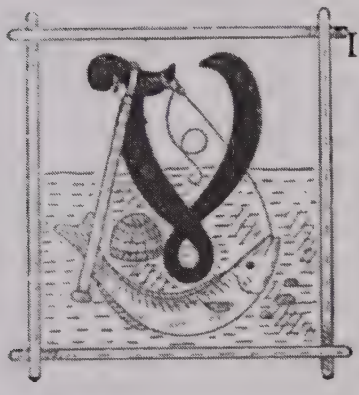
productive holes can only be reached at dead low-water, and cannot, of course, be tried when the sea has risen.

Congers often conceal themselves in a crevice to wait for the tide, and may sometimes be drawn out with a hook, but it seems rather like taking a mean advantage of them.

The above cannot be called a very profitable amusement, but it will serve to pass an hour or so when everything else fails.

Chapter XVII.

SHRIMPING AND PRAWNING.



VISITORS to the seaside derive much pleasure from these popular amusements, and even those who never venture out in a boat delight in hunting for these small but delicious shell-fish. A dish of well-cooked Prawns for breakfast is a treat relished by everybody, and they acquire an extra flavour if the person has captured them himself the day before, and, therefore, is sure that they are perfectly fresh. The distinction between a Prawn and Shrimp lies in the fact that the former is provided with a sharp spear projecting from its head, which is almost entirely absent in the latter. When boiled, Shrimps become grey, while Prawns assume a bright red colour. Notwithstanding this obvious difference, Prawns are often called Pink Shrimps, to distinguish them from the grey species, to which the title of Shrimps should properly be applied. It should here be mentioned that Prawns principally inhabit localities where there are rocks and long seaweed, whereas Grey Shrimps frequent sand or muddy grounds.

Strand-Net.

On some parts of the coast this is appropriately called a "Shove-net," and it is a method carried on by many professional shrimpers. There are different methods of constructing this net, but the improved style, as depicted in Fig. 120, can be highly recommended. A pole 7ft. long and 1¼in. in diameter, of yellow pine or any other light

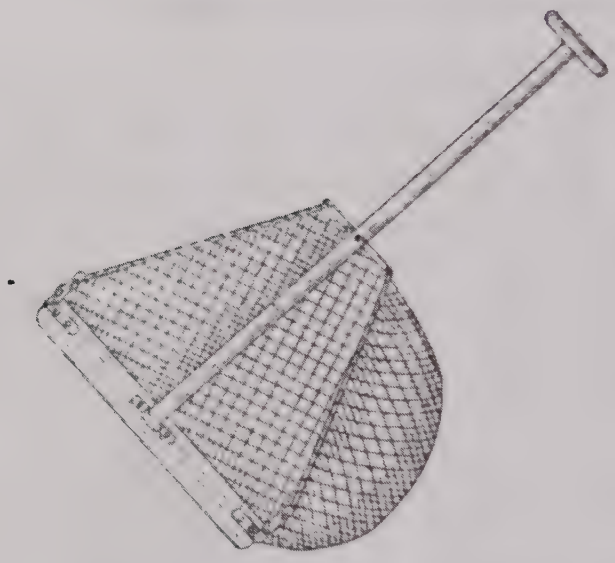


Fig. 120. Strand-Net complete, for Shrimping or Prawning.

strong wood, should first be procured. Hornbeam, if it can be obtained, is peculiarly applicable. The front of the net consists of a flat piece of wood, 3ft. 6in. to 4ft. long, and 4in. wide. It should be ¾in. thick inside, but the outer edge should be reduced to ¼in., so that it will keep close to the bottom. The end of the pole is flattened, and fits into a galvanised iron socket, screwed on to the centre of the cross-bar. About 2ft. 6in. from the front bar a hole is bored through the centre of the pole, and a piece of brass

tubing, about 1ft. in length, inserted. Each end of the tube is plugged with wood, and a brass eye screwed into it; or they could be soldered on.

A couple of galvanised iron brackets, similar to that illustrated by Fig. 121, should now be procured from an ironmonger, and screwed on to each extremity of the front bar. To the top of the brackets attach pieces of line, and make them fast to the brass screw-eyes on each side, after having passed them through the outer loops of the net.

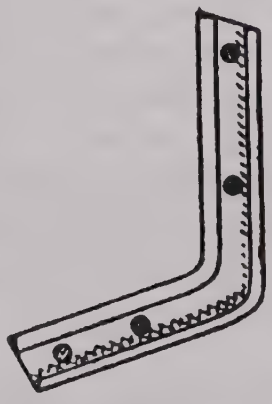


Fig. 121. Galvanised iron bracket screwed to front bar of Strand-Net.

The net should be tacked on underneath the front bar, and can then be easily put together when required. At the end of the pole is a "crutch" handle, as illustrated, which should be mortised on. The object of the brackets is to slightly raise the sides of the net, which prevents the Shrimps from escaping. By unfastening the line on each side, and withdrawing the pole from the socket, the net itself may be wrapped upon the front bar; and when this is lashed to the handle, the whole apparatus is portable and compact.

Another simple plan is to obtain a large barrel-hoop from a cooper's shop, and cut off a portion, leaving about three-quarters of a circle. Nail the two ends to each extremity of the front bar, and lash the centre part to the pole. Along the lower edge of the hoop bore a number of holes for lacing on the net. Though easily made, the second method is not, of course, so portable as the first.

The best place to use the Strand-net is upon a sandy or a muddy bottom, and it cannot properly be worked in pools or amongst rocks. The fisherman wades into the water and

pushes the net in front of him, generally proceeding parallel with the shore. After a few minutes, the net is raised perpendicularly and the contents are examined, when the Shrimps or Prawns are easily separated from the seaweed. Low-water during spring tides is the best time to fish, especially when the tide has commenced to flow. A pair of long waterproof boots, reaching to the thigh, are excellent for Shrimping, and much better than going about with bare feet. The latter is a dangerous habit, owing to pieces of glass which careless people often leave about on a beach. Or you may get stung by a Weever, a small fish which buries itself in the sand, leaving its sting uppermost, and inflicts a rather painful wound. For carrying your Prawns there is nothing better than an old fishing-basket, or creel, slung over the shoulders in the ordinary way, and they are easily slipped in through the hole in the cover without unfastening the peg.

Pool-Net.

For amateurs, and children especially, this net is much more convenient, and great quantities of Prawns can be captured with it. The ring should be of iron, $\frac{3}{8}$in. thick and 14in. in diameter. Of course, the ring might be larger or smaller than 14in., but I have taken numbers of Prawns with a net of this size, which is easily managed. Galvanised iron is the best material for the ring, as it prevents rust.

The handle should consist of a light, tough pole, 4ft. 6in. long and 1in. in diameter. A broom-handle would answer very well for this purpose. After forming the ring, the two ends of the iron should be flattened out for a space of about 6in. by $\frac{3}{4}$in. in width, and this portion riveted to the handle by three bolts, as represented in Fig. 122. The two sides of the wood must be planed flat for receiving the iron, and only one side is shown in the drawing. Any blacksmith would

accomplish this for the amateur, and when thus fixed, the ring cannot become loose.

Instead of this plan, the two ends could be forged together into a spike. The end of the handle should be fitted with a brass ferrule, and a small hole bored in the centre. Now heat the spike red-hot and drive it into the handle as far as

Fig. 122. Method of fixing Ring to the Handle of Pool-Net.

it can be admitted, when it will become firmly fixed. Some rings are made of flattened iron, with holes bored in it for lacing on the net, and they are often elliptical in shape. I am inclined to think, however, that the Prawns pass more readily over the round iron of the ring.

Fig. 123 depicts the Pool-Net, as it should appear when

Fig. 123. Pool or Hand-Net for Prawning.

properly fitted up. For making the net, No. 18 or 22 Irish flax netting thread, already mentioned, is excellent, and a mesh-peg $\frac{3}{8}$in. in width should be used. The mesh for Shrimp-nets should not in any case be less than $\frac{5}{16}$in., as small ones should be allowed to pass through.

In making a round net, work a square piece first,

commencing with about 12 loops on the foundation cord. Net 24 rows, and then attaching the work firmly around the middle, continue netting round and round, adding additional meshes as required, until the bag is large enough. Provide double loops at the top and lace the net to the ring with strong whip-cord or wire. Always make the net full large for the ring so that it will not girt round the edge. A bone mesh-peg and a steel netting-needle are good appliances for the work.

For the Strand-net a square piece of netting should be provided, making it sufficiently large to admit of the centre hanging down and forming a kind of bag. Professionals often tar their nets, but they are less visible when left in their natural colour.

The method of using the round net is exceedingly simple, and it may be worked not only in pools left by the tide, but also in the open sea. With this net Prawns will be more frequently taken than Shrimps, and for the former it is eminently suitable. A large Prawn is a most cunning creature, and not a little skill will be required to circumvent him, especially if he sees the net coming. The easiest plan is to push the net quietly under the long seaweed fringing the rocks, commencing at one end of the pool and finishing at the other. Sometimes, one or two Prawns may be observed swimming about, which may be secured before disturbing the seaweed.

Another excellent method is to lift up the seaweed very cautiously with the hands, laying it back upon the rock. If a Prawn is observed, place the net behind him, and with the other hand drive him gently into its folds. Many pools contain a large boulder or rock, under which the Prawns can retreat when alarmed, and the net should always be kept in front of this opening to prevent their escape. If they have not retired too far under the rock, some may still be secured

by lowering the net on one side and guiding them carefully into it with the left hand.

At the back of a pier a good many Prawns are taken at extreme low tides, especially where rubbish or pieces of fish are thrown away. When the tide has commenced to flow is the best time, and fishing may then be enjoyably practised from a boat, provided that there is just sufficient water to float her. In clear water, the Prawns may be observed swimming singly or in pairs, and by placing the net just in front of them, they will enter it unsuspiciously. For Prawning, however, practice and caution are absolutely necessary for success. Never raise the net too hurriedly else a large specimen will quickly dart out again.

Around the edges of rocks at low-water good catches may often be made, and waterproof boots, with nails in the soles to prevent slipping, should be donned for this work. Always wear the oldest clothes for Prawning, and never go about without some covering for the feet.

Baited Prawn-Net.

On the Devonshire coast some fishermen earn quite a living by this method, and the largest Prawns, which would fetch 1d. or 2d. in the London market, are included in the catch.

Fig. 124 gives an accurate sketch of this net when baited, showing part of the buoy-line and the lowest cork. The hoop is of iron, 2ft. in diameter and ½in. thick; and the net, which is about 1ft. in depth, is composed of stout twine, being afterwards tarred to preserve it. Before attaching the net to the ring, a piece of cord is passed through the outer loops to strengthen them.

About 6 fathoms of 1in. rope will be required for the buoy-line, fitted with a bunch of corks at the end and several single corks along it at intervals. These measure 4in. by 3½in., and are 1½in. thick. The lowest cork should be

attached 1ft. above the junction of the cords suspending the hoop, and the others about 3ft. apart. The end of the buoy-line is provided with a spliced eye, which is made fast by strong twine to the rim of the hoop.

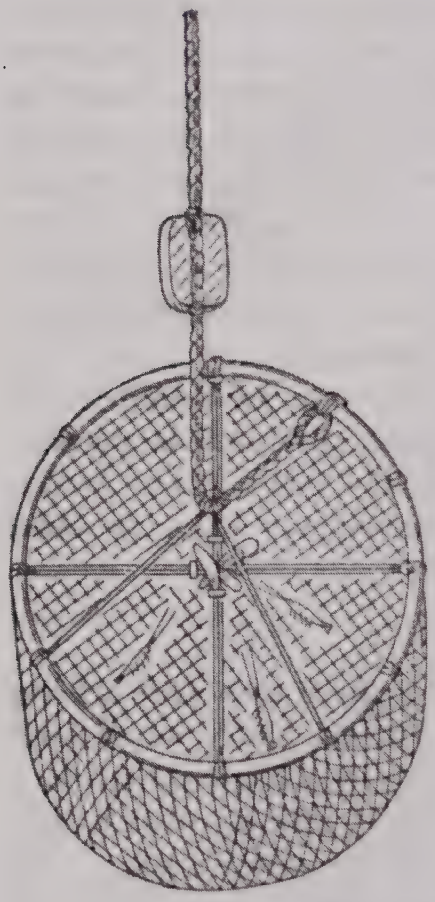


Fig. 124. Baited Prawn-Net, showing bait adjusted in the centre, and method of suspending it, also lowest cork on buoy-line.

At a distance of 18in. from the ring pass two or three turns of twine to form a stop. Now take another piece of cord, about 4ft. in length, double it, and make a Lark's-Head Knot above the stop and a half-hitch with the double cord below it. Separate the cords, and secure the ends to the rim at a distance of one-third of the circle apart. Should the net become fixed accidentally amongst rocks, the smaller cords will break, and it can then be hauled up sideways by the buoy-line.

Across the mouth of the net pieces of stout twine are fastened, as shown in the drawing, the bait being placed in the centre. Take a piece of twine, 4ft. 6in. long, and having doubled it, secure it by a Lark's-Head Knot to the rim on one side, and by the two ends to the opposite side. Take a similar piece, and attach it at right angles to the first by the same method. Where it crosses, a "clove-hitch" should be

made, as depicted in Fig. 125, which gives an enlarged view of the cords. When properly adjusted, the cords are not stretched quite tightly, but hang down about 5in. from the level of the ring.

The bait is placed between the double cords, and kept in position by pieces of twine or leather, made to slide up against it from each side. Four "sliders" will be required, as shown in Fig. 125, and the bait consists of any kind of

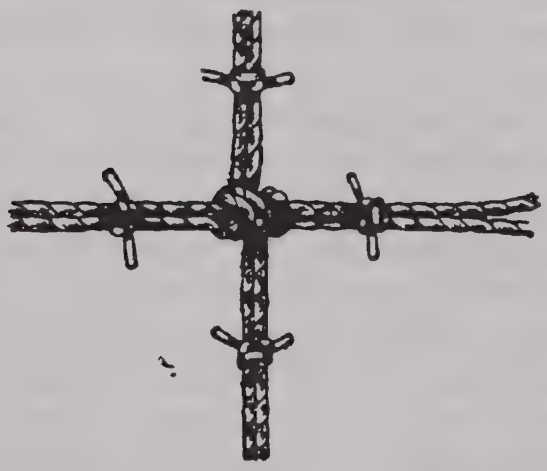


Fig. 125. Cords across the centre of Baited Prawn-Net enlarged, and showing the four pieces of twine knotted to form "sliders" for holding bait.

fish, cut open to render it more inviting. Prawns often prefer stale or salted bait to that which is quite fresh.

When baited, these nets are set from a boat in about 3 or 4 fathoms of water, and generally upon rocky ground. Twenty or thirty nets can be managed by one fisherman, and they are "shot" one after the other at a little distance apart. When the last of the "string" has been lowered, it will be about time to haul up the first one, but each must be furnished with its own buoy-line. There should be two hands in the

boat, one to manage the nets whilst the other is at the oars. This method is usually practised after dusk, and a lantern should be carried in the boat. A piece of canvas should be stretched loosely between the thwarts of the boat, and into this receptacle are capsized the contents of the nets, including innumerable Green Crabs which crawl about in all directions. At the conclusion of the fishing, the lantern is lighted and the Prawns are separated from the seaweed, &c. Occasionally an edible Crab of fair size or a decent Lobster will be taken in one of these nets. A waterproof apron should always be worn, as the nets bring in a good deal of water when hauled up.

Prawn-pots are used in some places, and they resemble Crab-pots, except that they are constructed on a finer scale. They do not appear to take many Prawns, and a fisherman at Babbacombe informs me that he has discarded them in favour of the baited nets just described.

On rocky parts of the coast, where the sea has formed channels or gullies, baited Prawn-nets (locally known as "gins") can be worked with success without the aid of a boat. The ring should not exceed 18in. in diameter, and a boy's hoop would be suitable for the purpose. In the centre the net should be quite shallow, but on opposite sides there should be two pockets having an extreme depth of 6in. to 8in. in the middle. For suspending the hoop three cords will be required, meeting together a little above it, an eye being then formed for attaching a short buoy-line about one yard in length. At the point where the cords meet, a round, flat cork should be placed, and above this, two others at a distance of 1ft. apart. Bore a hole through the centre of each cork, and having introduced the line, make a knot above and below it. The surface of the top cork should be painted white, or treated with luminous paint, to render it more visible in the evening.

For lowering and raising the nets a pole, 10ft. to 12ft. in length, should be provided, having a fork at one end. This is placed beneath the top cork, by which means the net may be easily raised, although situated at some distance from where the fisherman is standing.

For baiting the nets small Crabs are excellent, but Mussels, Limpets, or pieces of stale fish will serve for attracting the Prawns. A couple of wooden meat-skewers should be provided, and upon these the bait is transfixed. When prepared, they should be passed through the meshes of the net in such a manner as to lie across the pockets, one on each side. About four of these nets will be sufficient to be properly managed by one person. Lower the nets wherever seems a likely place for Prawns, provided the water is not too deep. When you have set all the nets in different spots, return to the first and raise it very carefully and steadily by means of the long pole. The best time for this sport is about two hours before low-water, and it may be continued until the tide begins to flow. It is practised with the greatest success during a calm evening, but Prawning can also be carried on in the day-time. In the latter case, more will be taken when the water is thick or muddy, as the Prawns are prevented from seeing the traps laid down for them.

Shrimp-trawling is extensively carried on off Gravesend and other places, for supplying the London market with these delicacies which are so greatly in demand by all classes of people. These nets are fitted up much after the principle of a beam-trawl, except that they are smaller in proportion.

One of the principal places for this industry is the village of Leigh, in Essex, and the boats employed are known as "bawleys," being in reality powerful trawlers.

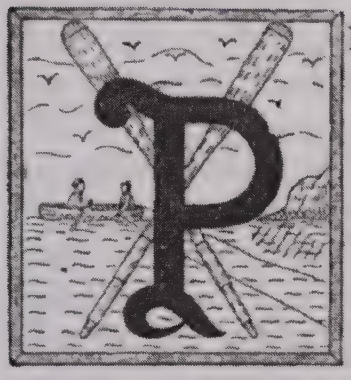
On the East Coast, a small-meshed trawl is drawn along the hard, sandy bottom in proximity to the shore behind a horse and cart. This curious method is chiefly followed at

Mablethorpe and Sutton, and the fishermen thus employed are known as "trollopers."

One of the best ways of cooking Prawns is to place them into fresh boiling water for about three minutes, but not longer. Now spread them out upon a dish or cloth, and sprinkle salt freely amongst them, which will be quickly absorbed whilst they are wet. This will be found a much nicer way of preparing them than the usual plan of putting a handful of salt into the boiling water, which tends to harden the inside, causing the flesh to become dry and tasteless.

Chapter XVIII.

DREDGING, SPEARING, AND MINOR METHODS OF TAKING FISH.



RACTICALLY all the chief methods of sea-fishing have been fully described, but there still remain others which, besides affording employment to many of our working fishermen, possess considerable interest for the average reader. Some of these modes can hardly be classed under the title of sea-fishing; still, as all the products emanate from the ocean, it is only right that they should be included.

The Oyster Dredge.

This appliance is employed for raising Oysters from the beds where they are propagated from the "spat," or spawn, and the mouth is fitted with heavy bars of galvanised iron so that it will scrape the bottom. The opening measures 4ft. in width by 9in. in depth, to which is attached a net composed of stout cord, the mesh being large enough to allow small stones and mud to pass through while retaining the Oysters. Below the net is placed a piece of strong chain-work to protect it from contact with the bottom. The dredge

is fitted with "outriggers" and shackles, and a strong chain is stretched across a little in advance of the opening for the purpose of detaching the shell-fish. Only those Oysters which will not pass through a circular ring of 2in. internal diameter are allowed to be removed from a fishery, but in some districts 2½in. is the limit allowed.

In Sydney Harbour small Oysters grow in numbers upon the rocks, and may easily be removed with a knife by any person so inclined. This delicious species is well known as the "Sydney Rock Oyster," and finds its way in great quantities to Melbourne and other large towns.

The Oyster dredge is usually towed by powerful cutters, but in some harbours this industry is carried on by small rowing-boats, manned by a single fisherman, and they are managed as follows:—A creeper or heavy anchor is deposited, fastened to a great length of rope, which allows the boat to drift for some distance from the place of anchorage. Having lowered the dredge, and made the rope fast to the stern, the man now commences, by means of a windlass fitted with hand-spikes, to wind in the rope attached to the anchor. While hauling in the boat, this operation also tows the dredge along the bottom. On arrival at the anchorage, the dredge is hauled up and the contents are examined. By dropping the anchor in a fresh locality it is, of course, quite easy to try different ground. A large kind of these shell-fish, known as "Deep-sea Oysters," are taken by trawlers fishing at some distance from our coasts.

It has been ascertained that Oysters, as well as Cockles and Mussels, become contaminated by sewage, and the trade in many places has suffered considerably through this discovery. Cases of typhoid have been attributed to this cause, but a few isolated instances of this kind will not deter people in general from enjoying these delicacies. It is a common saying that Oysters should only be eaten during

those months with an "r" in them, and these bivalves, as well as most kinds of shell-fish, are considered out of season from May to the end of August.

Shrimp and Prawn Dredge.

Fig. 126 represents a very useful kind of net for the capture of Prawns, Shrimps, or Flat-fish, and I am informed that some fishermen earn quite a respectable living by employing it. The mouth of the net is 4ft. wide by 18in. deep, and consists of a light framework of wood. The upper portion is bent as here illustrated, and the lower bar, which rests on the bottom, is of galvanised iron. The frame is about 1½in. in width, and ⅝in. thick, and the ends of the iron bar are

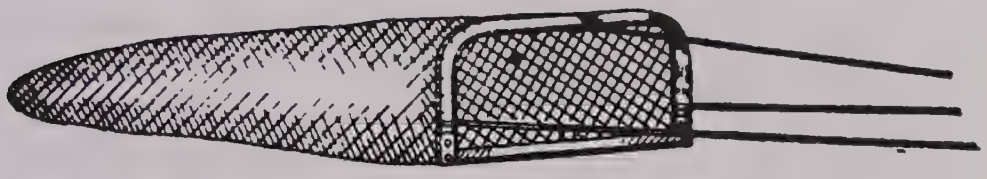


Fig. 126. Shrimp and Prawn Dredge, showing portions of the three slings attached to the mouth. These terminate in an eye for attaching tow-rope.

bolted to the wood. The net is 6ft. or 7ft. in length, tapering towards a point, has a small mesh, and is constructed of stout untanned twine. Through the outer loops is passed a piece of line, which is then laced on to the frame by means of holes, bored along the edge. The net is provided with three long cords, terminating in an eye for attaching the tow-rope. The upper sling should always be shorter than those from the sides, so that the top will be canted forwards, which prevents fish, when alarmed, from darting upwards and escaping. Sometimes a small "cod," like that of a beam-trawl, is attached to the end; this keeps Flat-fish from escaping.

These nets may be easily towed from a small boat in the manner already described for dredging, by merely hauling upon the anchor-rope.

The Naturalist's Dredge.

For amateurs who are fond of collecting shells and other curious marine specimens this is an excellent little appliance, easily towed from the stern of a small sailing-boat in a light breeze. It is depicted in Fig. 127, and is made of galvanised iron after the principle of an Oyster dredge. A useful size would be 18in. in width by 6in. to 8in. in depth, but they

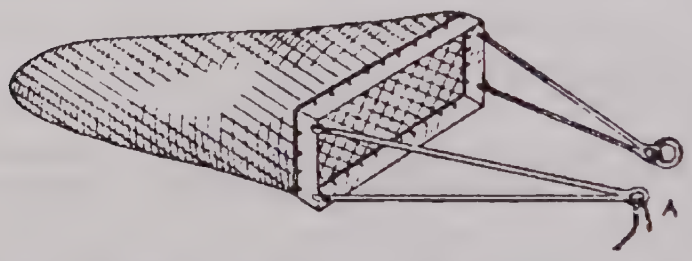


Fig. 127. Naturalist's Dredge, the ring being connected by the twine at A, which will part on emergency if the net meets with an obstruction.

are made in different dimensions. To the back is attached a strong net, having rather a small mesh, and laced on to holes in the iron, whilst the edge at the mouth projects outwards slightly to enable the bar to scrape the bottom. There are two iron "outriggers," connected by a ring, for receiving the tow-rope; but one of them should only be made fast to the ring by a piece of twine, shown at A in the illustration. If the dredge should encounter a rock, this light fastening will part, and the strain then bearing upon one side only, it may be safely freed from the obstruction.

Oysters may be taken by this dredge on grounds where licences are not required for the privilege of fishing. In a

suitable locality, one haul of this dredge will keep a naturalist busily employed with his microscope for a whole day in examining the wonderful contents. When removed from the net, the entire haul should be carefully washed in fresh water to clear it from sand and mud. For small objects the net should be provided with a canvas bunt to prevent them from escaping. These dredges may be procured from Messrs. Hearder and Son, 195, Union Street, Plymouth.

In order to ascertain the nature of the bottom it is most interesting to take soundings. This is done by lowering a heavy conical lead, having a shallow cavity at the bottom filled with tallow. If the bottom is rock, the tallow will be merely indented; whereas, if it should be sand or mud, small particles will adhere and be raised. Sometimes a small shell or two will be found sticking to the tallow. By this method one might always ascertain for fishing purposes whether the boat is anchored upon rocks or sand.

Spearing Fish.

On sandy ground it is often possible to spear flat-fish as they lie upon the bottom, and Fig. 128 illustrates a useful weapon for this purpose. It is made of steel, and measures 4in. long by 2in. broad, the points being exceedingly sharp. These spears are also provided with five or seven prongs instead of three, but the latter are quite sufficient for effectually striking a fish. The spear top screws into a brass socket, fitted to the end of a light pole from 12ft. to 14ft. in length. Some of the instruments sold for spearing are much too coarse, and would be more suitable for harpooning

Fig. 128. Fish-Spear: the upper screw fits into a brass socket at the end of a long pole.

a Whale than the delicate Flounders and other Flat-fish for which they are intended. In fact, they would be liable to injure a fish so much that its market value would be considerably lessened. A spear, as here illustrated, may be procured from Messrs. C. Farlow and Co., Ltd., 191, Strand, London, W.C.

The method of spearing fish on the bottom is extremely simple, but keen eyesight and some practice are essential. There should be two persons in the boat, one of whom sculls the craft gently and quietly along, whilst the other scans the bottom carefully. When a flat-fish is observed, the boat must be brought directly above it, and kept perfectly steady.

Then the spear should be lowered carefully until it is within a few inches of the fish, when it should be thrust rapidly downwards. It is a good plan to aim slightly ahead of the fish, so that, if it should swim forwards, the spear will strike it about the middle. It requires practised eyesight to detect flat-fish on sand, as they have the habit of partially covering themselves, and the colour of the back closely resembles the surroundings. If the pole is plunged obliquely into the water, it appears as if bent owing to the refraction of light, which will considerably interfere with a correct aim. On the other hand, when inserted perpendicularly, it only has the effect of being shortened. Calm weather and clear water are absolutely necessary for success, and the fishing can only be carried on near the shore. When the tide has commenced to flow would be the best time for sport.

In striking a fish, always endeavour to insert the spear in a line with the head and tail. By this method the barbs catch in the spines of the back-bone, and it is not so liable to free itself when being drawn to the surface. Fig. 129 clearly indicates, by the dotted lines, the best manner of spearing a flat-fish. Flounders are often taken by means of a "fluking-pick" as already mentioned, which, instead of

being furnished with barbs, is merely notched along the sides of the prongs. After fishing, the spear should be carefully

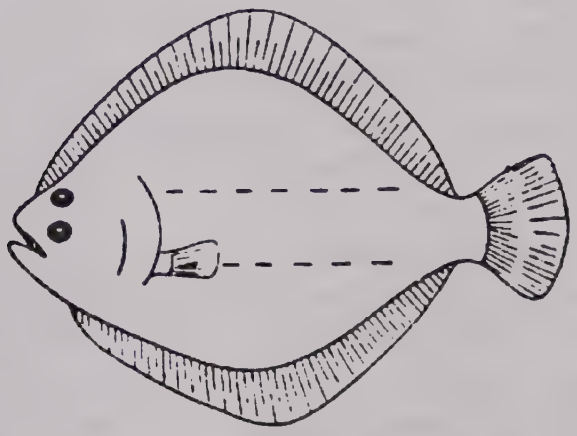


Fig. 129. How to Spear a flat-fish, dotted lines showing the method of striking.

wiped and a little vaseline applied to prevent its rusting. For removing rust a piece of fine emery-cloth should be used.

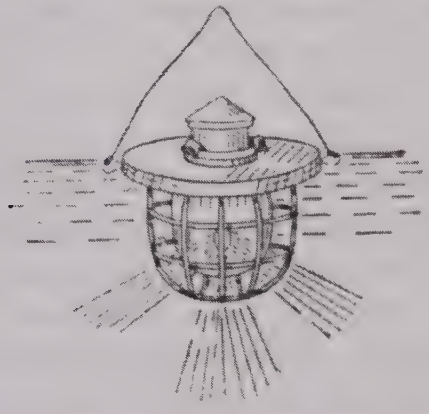


Fig. 130. Floating Lamp for attracting large Mullet or other fish at night-time.

As the spear above mentioned is rather light, it would be an advantage to weight the pole just above it with a piece of lead or iron.

At night-time fish may be lured to their destruction by means of a floating lamp; Fig. 130 illustrates this apparatus, which costs about 10s. and is procurable from Messrs. Hearder and Son, Plymouth. The upper portion is composed of cork whilst the light is suspended below it, the glass being protected by a wire cage. On opposite sides of the cork are fixed two eyes, to which is attached a sling to form a handle.

In order to entice Mullet, or other fish, some bread is placed in a muslin bag and attached to the bottom of the lamp. This device, combined with the bright light, entices large fish to the surface, when they are speared in the shoulder or gaffed. These lamps are often used in foreign waters, especially where large fish are numerous.

In the river Arno, at Florence, a kind of round net is used, measuring 12ft. or more in diameter, for capturing small fish in shallow water. The net is suspended to the ends of two long pieces of cane or wood, bent over it in the form of two semi-circular hoops, and crossing each other at right angles. In the stern of the boat is erected a stout pole or mast, to the top of which a large iron socket is fixed. Through this passes a stout bamboo, 15ft. or 20ft. in length, tapering towards the end which projects over the water. The smaller extremity of the bamboo is attached to the point where the two bows cross each other over the centre of the net. By this arrangement the net is lowered to the bottom, allowed to remain for a while, and then raised by means of a piece of rope attached to the butt-end of the bamboo. The latter is some distance above the man's head when the net is lowered and could not otherwise be reached. This method might be adopted by our fishermen for the capture of Smelts, Sand-eels, Whitebait, or other small fry accustomed to swim near the surface, and bait

could, of course, be thrown in to attract them if thought desirable.

Shells and Shell-Fish.

Of all things produced by the ocean, sea-shells may justly be described as the most beautiful, on account of their wonderful colours and diversity of form. Some kinds are so brittle that it is extremely rare to pick up an uninjured specimen, especially if they are covered with delicate spines. One of the most beautiful shells is that inhabited by the Nautilus, a creature which propels itself along the surface by means of a miniature sail and oars, and its dwelling resembles a boat in shape. Small specimens are of a transparent white colour, and are sometimes found on Australian beaches.

Another strange species contains an inner lining which in appearance imitates a bleeding tooth, though outside the shell is of quite an ordinary character.

The ninety-mile beach of Southern Australia yields some splendid specimens of shells, and the Mediterranean is also noted for the variety found in its waters. The island of Herme, one of the smallest of the Channel group, is much frequented by collectors for the sole purpose of picking up shells. Many of our own beaches furnish numberless beautiful varieties, and the best time to search for them is after a heavy gale.

Many shells are much improved by being polished, which is accomplished by diluting a little spirit of salt with three parts of water and rubbing the surface with an old tooth-brush dipped in the solution. This will remove the rough outside of the shells, and they should be afterwards polished with rotten-stone and oil, using putty-powder for the final process.

Another plan is to immerse them in diluted spirit of salt to

remove the outer coating. They are then rubbed with a brush or rag, washed in warm water, and carefully dried in hot saw-dust. The shells may now be polished with putty-powder, or by merely rubbing them with a piece of wash-leather. An old pair of kid gloves should be worn during the operation. From the naturalist's point of view, however, they are more valuable when left in their natural condition.

Many kinds of shell-fish provide useful articles of food, and both Mussels and Cockles are largely consumed by the poorer classes. In the Dee district a large industry is carried on in these shell-fish, which are obtained by raking or dredging upon beds covering an extensive area of ground. Cockles are gathered by hand or by means of a rake, locally known as a "craam"; they inhabit muddy flats or beaches at the estuaries of rivers. Cockles throw up a little jet of water from the sand, and wherever these indications are noted, there you will discover the Cockle. They are excellent when boiled or eaten raw like an oyster, and poor people eat them pickled.

The Escallop (pronounced "scollop") is a large bivalve, having one shell flat and the other rounded, the surfaces being ribbed or corrugated. They are taken in the trawl, or by dredging off Newhaven, Brightlingsea, and other places, and realise good prices. The fish should be cooked in its own shell, and covered with fine bread-crumbs, butter, pepper and salt, &c., being prepared in exactly the same manner as scalloped oysters. Then place it in a very hot oven, and when cooked, the addition of a little Worcester-shire sauce will make an appetising dish.

Another delicious shell-fish is the "Queen," which is like the Escallop, only smaller, and numbers are taken by trawlers who eat them stewed when unable otherwise to dispose of them.

In the Channel Isles, and upon the north coast of France,

a shell-fish called the "Ormer" is plentifully found. The shell is oval in form and only slightly concave, but its chief peculiarity consists of a number of small holes near the edge, gradually diminishing in size. The fish is not unlike a large Limpet, and the interior resembles mother-of-pearl. When polished it becomes a brilliant green colour, and the smallest specimens form pretty ornaments when thus treated, and are sold as ear-rings in the shops at Jersey and Guernsey. This shell is also used for inlaying in papier-maché goods of different kinds. The fish are first beaten, stewed gently for some time, and when served at table, accompanied by thick gravy, they might easily be mistaken for veal cutlets with a peculiar flavour of their own.

Whelks are large single shell-fish often exhibited for sale on barrows in the poorer districts of large towns. Besides being taken by dredging or trawling, they are also captured by trots, baited with small Crabs, but without any hooks. Spider-Crabs are often used for baiting these lines. Another method is to set pots for them, like those used for Crabs or Lobsters, which is carried on in many places around our coast.

Limpets are largely eaten by poor people, and are removed from rocks at low water with a strong knife. They should be placed in cold water and allowed to boil slowly, otherwise the flesh becomes hard and tough.

Periwinkles, or "Winkles," are small black shell-fish found adhering to stones and sea-weed. They are usually gathered by hand, and when boiled, the fish is extracted with a pin. Small Hermit-Crabs are often found inhabiting one of these shells.

Razor-Fish.

These bivalves inhabit sandy beaches, and their shells are so fragile that it is rare if the collector can find a perfect

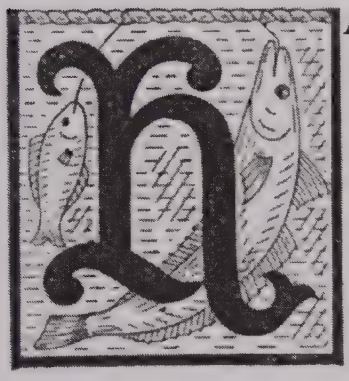
specimen. These fish are scalded and relished by the poorer classes, besides affording an excellent tough bait for Dabs, Plaice, and other ground-fish. At low spring tides they are taken by means of a small spear, as depicted in Fig. 131, Procure a piece of iron wire, about 2ft. 6in. long and a little more than $\frac{1}{8}$in. in diameter. Make one end of it red-hot, and flatten it out carefully upon an anvil. Out of this portion file a spear, or arrow-shaped point, as illustrated, making it about $\frac{1}{2}$in. across the widest part of the barb. Thus prepared, walk carefully along near the waves, and search for small depressions or hollows of oval shape in the sand, which indicate the presence of Razor-fish. Insert the end of the instrument in the hole, and probe about carefully for the fish. When the spear penetrates easily, thrust it downwards in a slanting direction, and then give it a "half-turn." This brings the barbs at right angles to the lower part of the shell, and when withdrawn, the fish is impaled upon the wire. To remove it without further injury, draw it off the wire at the opposite end to the spear. They must be speared before they are able to descend too deeply in the sand, otherwise it is difficult to draw them out.

Fig. 131. Spear for taking Razor-Fish.

These fish are in best condition during autumn and winter. Occasionally they may be observed protruding from the surface, or a pinch of salt upon the hole will sometimes cause them to rise. On an average they measure about 5in. in length by $\frac{3}{4}$in. in breadth, the hinge being situated near one end, but specimens often attain a larger size.

Chapter XIX.

USEFUL APPLIANCES AND GENERAL HINTS.



AVING now brought the reader through every stage of sea-fishing, there are a few important items of information which, though not essential for success, will contribute towards that object and also add to his comfort.

Gaffs, and their Usage.

A really serviceable gaff is a matter of much importance to the sea-fisherman, and I will now describe one which has landed fish of over 50lb. in weight, so that it may be considered thoroughly dependable. Fig. 132 gives the correct shape of the gaff before fitting it into the handle. It should be made of carefully tempered steel, 7½in. in length and 2⅞in. in breadth, measuring from the point to the outside of the curve. The steel should be $\frac{5}{16}$in. in diameter at the thickest part of the bend and taper gradually to a fine point. At the bottom is a spike, about 1¼in. in length, bent at right angles as here shown for securing it to the handle; but this portion must be left soft, and not hardened by tempering.

For obtaining this, the amateur should apply to a good blacksmith, supplying him with the above dimensions. The handle is made of ash, 2ft. 10in. long and 1in. in diameter at the gaff-end, though slightly thicker at the base. The lower part of the hook should be let in to the wood and the spike clenched at the back; after which, a brass ferrule is passed over the point and effectually secures it.

Fig. 133 depicts the gaff completed, the dotted lines showing the position of the spike. When not in use always

Fig. 132. Gaff-Hook, ready for fixing into handle.

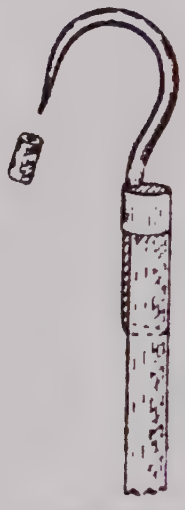


Fig. 133. Gaff with handle complete, dotted lines indicating how to insert the spike. A large cork protects the point when not in use.

stick the point into a large wine-cork. To avoid danger while travelling, tie a piece of string tightly around the centre of the cork; then cross the two ends several times over the bend of the gaff and fasten them to the base. This plan prevents the cork from being accidentally removed from its position. The handle should be given two coats of yacht-spar varnish to keep out the wet, and may with advantage be revarnished every season. Some handles have a knob

at the end; or a small hole may be bored for attaching a piece of line. Both are useful methods when dealing with large Congers. An ordinary salmon-gaff can, of course, be employed, but is rather too good for sea-fishing.

For boat-work, a short gaff is much the more convenient, but for rock-fishing a long handle will often be necessary, especially when the angler has no assistant with him. In the latter case it should measure from 8ft. to 12ft. in length, and be jointed together like a fishing-rod.

A gaff should always be kept clean and free from rust, which, with the aid of some fine emery-paper, involves very little trouble. After cleaning, a little vaseline should be applied to the steel. If the gaff is carefully wiped with a cloth after a day's fishing it will keep bright much longer. A rusty gaff not only detracts from the keenness of the point, but also corrodes (and so weakens) the hook itself. In polishing a gaff, always rest the point downwards upon a bench or a table. When fish are expected, the cork must be removed from the point and the gaff kept in a handy position in the boat. The shoulder is the best place to gaff a fish; but a Conger is rendered less destructive if gaffed in the tail. In case of emergency a gaff may easily be made by procuring a large hook, such as that used for Albicore or other large fish, and having filed off the barb, lashing it firmly to the end of a stout stick. Indeed, the latter is often used by boatmen at sea-side places, but generally thickly coated with rust.

Boat-Mat.

The seats of a boat do not usually excel in softness, and, therefore a mat of some kind will contribute towards comfort, especially when whiffing single-handed. For the foundation the coarse canvas sold for Smyrna rug-making should be used, and 17in. by 10in. would be a useful size.

The material for working should consist of unbleached cotton, which is easily washed when dirty. Wind the cotton evenly upon a piece of flat wood about 1½in. wide, or a gauge having a groove along the edge and made on purpose. Having wound on a number of coils, rest it upon the table and cut along the upper edge with a pair of scissors, which will result in a number of lengths or "thrums." Take one of the pieces, and having levelled the two ends, draw the loop through the canvas with a large crochet-hook. Put the ends through the loop and draw them tight, which will secure one of the thrums in position. Continue this system in rows until the mat is finished.

Another plan is to pass the material round a mesh-peg as in netting, and work it with cross-stitch into the squares. By cutting along the outer edge of the mesh-peg, much the same result is obtained, and this is the quicker method of the two. After finishing the mat, pieces of tape should be sewed to the four corners for securing it to the thwart. The foundation of the mat might consist of stout canvas; or a piece of this material may be sewed to the back to make it stronger and resist the wet. When used for the stern, a larger mat will probably be required. Cushions are often made of leather or cloth, stuffed with pieces of cork.

Carrying Fish.

If merely a piece of string is used for carrying a heavy catch of fish, the fingers are certain to suffer before the fisherman has safely reached his destination. The following simple contrivance will prevent discomfort, and provides a firm grasp for the hand. A piece of an old broom-handle, 5½in. long, or any round wood about 1in. in diameter, must first be obtained. At each end a strong brass screw-eye should be fixed in the centre of the wood. Now cut off a piece of medium fishing-line 2ft. in length, and splice the end to one

of the brass eyes. The other end should be spliced to a brass pin, 3¼in. long, having an eye for its reception and the opposite end filed to a point. Fig. 134 illustrates this useful appliance complete. When finished, a coat of yacht-spar varnish will greatly improve the appearance of the wood. In stringing up fish, always pass the pin through the gullet. Some fish, particularly Grey Mullet, have weak gills which will not bear their own weight. Having disposed of all the catch, insert the pin through the brass eye, and pass two half-hitches over the point.

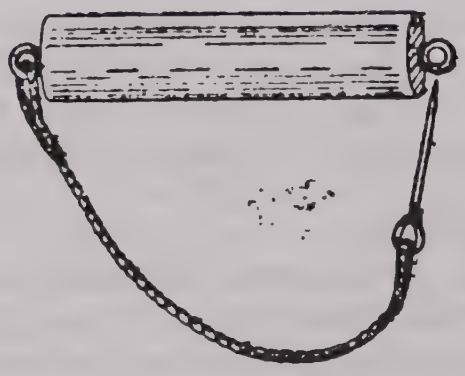


Fig. 134. Fish-Stick, a handy appliance for carrying home a heavy catch.

For pier-anglers there is nothing better than a large fishing-basket, strapped across the shoulders, but it should always be removed while engaged with the sport. It is an excellent plan to place a sheet or two of old newspaper inside, which keeps the interior clean, and may be thrown away on returning home. A lining of canvas, which could be removed for washing, would also be a good arrangement.

Unhooking Fish.

For this purpose a disgorger is sometimes useful, and merely consists of a piece of wood or strong wire, about 1ft. in length, having a V-shaped groove at one end. Hold the line in the right hand, and introduce the disgorger into the fish's mouth so that the bend of the hook rests within the groove. By pushing downwards and twisting at the same time, the hook may be removed without any danger to the fingers.

In grasping a large fish, place the hand just inside the flap of the gill-cover, and never between the gills themselves, which inflict scratches if the fish is inclined to struggle. If the hook is fixed in the gullet, it is a good plan to make a cut with a knife in the lower lip. The hand may then be inserted, and having loosened the hook, the bait may easily be withdrawn through the mouth. An artificial spinner or eel may thus be removed without fear of damaging it. Sometimes the hook may be reached through the gills—a useful plan in dealing with small fish. The pier-angler will often catch a small, flat-headed fish, called the Sordid Dragonet, and the head should be pierced with a knife before attempting to remove the hook, as it possesses extremely sharp spines.

Clothing.

It seems almost superfluous to say that only the oldest clothes should be worn for sea-fishing, for they quickly become stained with salt water. White flannels are most undesirable garments as they soon get dirty and shrink badly when washed. A suit of blue serge, indigo-dyed, may be highly recommended; this will stand washing and is preferable to lighter materials. In cold weather, a knitted guernsey drawn over the waistcoat will be found a great comfort, and it will be noticed that fishermen always wear them. It is generally advisable to wrap up more warmly at sea than would be customary on land.

No matter how fine the weather appears to be, an "oiler" or old mackintosh should always be carried, especially when fishing from an open boat. If unprovided with this protection, it is possible to hold the bottom-board over one's head in case of a heavy shower, and this dodge keeps off a good deal of rain. Oil-skin trousers are most useful when fishing, and combined with a coat and "sou-wester," will keep one perfectly dry.

When hauling nets, crab-pots, and other gear, a waterproof apron, or petticoat fitted with strings to tie round the waist, can hardly be dispensed with.

For keeping the feet dry and warm a pair of waterproof boots are excellent, and they are also most useful for launching a boat or wading in shallow water. A serviceable pair of rubber knee-boots may be bought at any shoe-maker's shop for £1 1s., but those usually worn by fishermen are made entirely of leather. The best are those principally composed of leather, with an outer covering of rubber, and should reach well up the thigh. These do not become hard and require no dressing.

Rubber boots must never be oiled, and should not be placed too near a fire. If damp, heat some beans in the oven and pour them into the boots, allowing them to remain all night. In the morning they will be found dry and ready to wear. Whole horse beans should be used, which, when fairly hot, absorb any moisture in the boots, and can be employed again and again. A pair of thick worsted stockings should always be drawn over the trousers before putting on long boots, which should be full large for the wearer.

If ordinary walking-boots are worn in a boat, a little dubbin should be well rubbed into the leather beforehand; this is an excellent preservative from salt water. In wet weather, the bottoms of the trousers should always be brought outside the boots to prevent the entrance of water.

Tackle-case.

This is a useful receptacle for keeping gut collars or other oddments, and measures 5¼in. by 4in. It should be made of American leather cloth, lined with "tick" or any other thin, hard material, in which hooks will not catch. There should be three or four pockets for holding gut casts of different

thicknesses, and it is constructed just like a flat purse. The outer cover is provided with a flap, furnished with a loop of elastic which is connected to a large button sewed on to correspond with it. Before attaching the pockets, the edges of the leather should be bound with ribbon. If neatly made, this article would prove an acceptable present to any fisherman.

After fishing, all lines should be unwound and allowed to dry. Gut casts and hooks should be rinsed in fresh water and then carefully dried, which greatly preserves them. If thus treated, artificial spinners last much longer and do not tarnish so quickly.

Hooks of various sizes may be kept in a shallow box, about 6in. deep, provided with a tray which should be divided into compartments for keeping each size separate. Underneath the tray there would be room for lines, snooding, and other small articles. On board a yacht, where order and tidiness are observed, such a receptacle would be greatly valued.

Cooking Fish.

There is nothing better for boiling fish than sea-water pure and simple, provided it is obtained some little way from the coast, and not in a harbour where it would be likely to become contaminated. When ordinary sea-water is not procurable, the proper proportion of salt is 5oz. to the gallon of water. As a rule, cooks do not add sufficient salt in boiling fish, the consequence being that the flesh lacks firmness and flavour. Fish are also much improved by being cleaned and washed in the sea.

Bass-pie.

This is a dish not generally known, and is an excellent method of cooking a Bass, which is usually considered rather

an indifferent fish. At the bottom of an ordinary pie-dish place some bread-crumbs, chopped onions, and herbs, upon which lay pieces of the fish cut up into small fillets. On the top of the fish place another layer of bread-crumbs, and continue this proceeding until the dish has been filled, adding plenty of seasoning according to taste. Cover the dish with ordinary flour-paste, and put it in the oven. When about half-baked, cut a flap in the centre of the crust and pour in a cupful of clotted or "Cornish" cream, replacing it in the oven till properly cooked. Any other fish of a soft nature could be utilised instead of Bass, but the latter is specially appetising when thus prepared. "Sea-pie" is composed of layers of paste and meat alternately, which is afterwards boiled, and is a common dish on board ship.

Curing Fish.

It is quite possible that the amateur may have a superabundant catch of fish, the whole of which he is unable to utilise, and in such an instance, those which cannot be immediately used should be salted. In the winter it is often impossible in small villages to procure fish, and the poor inhabitants always "salt in" large specimens during the summer to provide for this inclement season.

First split the fish open as far as the tail, thoroughly washing it in salt water, and removing the head and backbone. Cover the bottom of a tub with salt, and place the fish therein. Arrange the fish one upon the other, with a layer of salt between each. Allow the fish to remain in this condition for four days, which is the proper time for large Pollack; but five days for Cod or Ling. When taken out of the brine, wash the fish, press it, and then hang up to dry.

After having been salted, fish are often smoked, and many kinds which only realise low prices might meet with more

appreciation when thus treated. An easy method is to procure a large cask and knock out the top and bottom. A fire should then be lighted inside, and oak saw-dust placed upon it so as to allow it to smoulder. The fish should be placed upon a stick or bar, and suspended over the mouth of the cask until sufficiently smoked. Larger quantities could be more readily prepared by hanging them over one of the old open fire-places, and lighting a wood fire underneath.

The following recipe for preparing sprats like anchovies may possibly prove useful to some of my readers. Take a peck of the best sprats, perfectly fresh and just as they have come out of the sea; have ready 2lb. of common salt, 4oz. of saltpetre, ¼lb. of bay-salt, 2oz. of salt prunella, and two-pennyworth of cochineal. Pound them all together in a mortar, and mix the ingredients thoroughly together. Now procure a stone pot or barrel, and into it place a layer of sprats, then a layer of the salts, and so on until the receptacle is full. Press them down hard, and cover closely. Let them remain thus for six months, when they will be ready for use.

The Water-glass, or "Sea-Telescope."

With the aid of this useful appliance, objects may be seen at the bottom of the sea with surprising distinctness, even at a considerable depth, which could not be observed by the naked eye. To the naturalist it would be a continual source of pleasure, and enable him to study the habits of fish and other marine inhabitants in their native element. It should be made of wood about ⅝in. thick, and measure 27in. in length, being constructed so as to form a square tube. The opening should be 8in. square, and the sides must be firmly halved or dovetailed together. Near the bottom, as indicated by the dotted lines in Fig. 135, a piece of clear plate-glass

is inserted, and the sides are provided with wooden handles, like those on a wash-tub. Sometimes they have an opening, 10in. square at the top and 8in. at the bottom, the upper portion being hollowed slightly at opposite sides for admitting the face. When finished, it must be given a couple of coats of paint to make it thoroughly water-tight.

While holding it firmly by the two handles, the lower portion is immersed for about a foot beneath the surface, and the person looks through the top. It is important to exclude as much as possible all external light, and this is best effected by taking a piece of dark material around the inner edge, leaving an opening for the head. Objects cannot be distinguished when the water is thick or muddy, and the clearer it is the more visible they become.

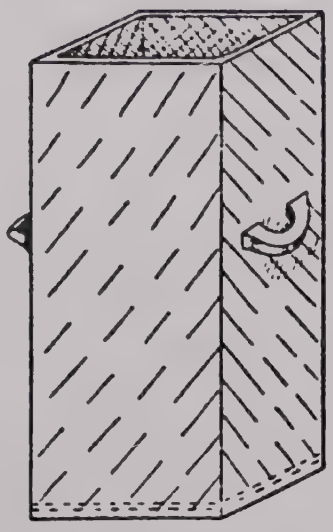


Fig. 135. Water-Glass, or "Sea-Telescope," dotted lines at bottom showing the position of the plate-glass. It is grasped by the two handles while the person looks through the top.

For recovering lost moorings, the water-glass is specially useful, as by its assistance they might be easily found. When their situation has been discovered, directions could be given to another person, who should be provided with a boat-hook for picking up the chain. It is also frequently used for salvage purposes, and in many other instances this simple contrivance would render valuable service.

Whilst endeavouring to keep this little work within a small compass, I have tried not to omit any item of information which might possibly be useful. Although the directions might be considerably amplified, nothing would be gained by

doing so, as much depends upon practical experience and the ability of the fisherman himself. A good fisherman always adapts himself to his surroundings, and if he does not succeed with one bait, he changes it for another. By taking pains, however, some reward is bound to follow, and with this parting advice I conclude by wishing the best of luck to all my readers.

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ERRATA.

Page 15, line 4, *for* ends, *read* end.
Page 26, line 18, *for* $\frac{1}{16}$in., *read* $\frac{1}{8}$in.
Page 32, line 3, ment *omitted.*
Page 60, line 9, comma *after* Herring, *should be* hyphen.
Page 78, line 16, *for* 2lb., *read* 1lb.
Page 78, line 28, *substitute* of food (Plate VII.).

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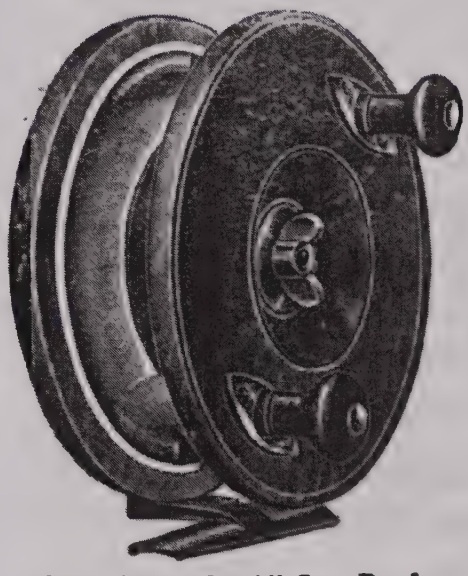

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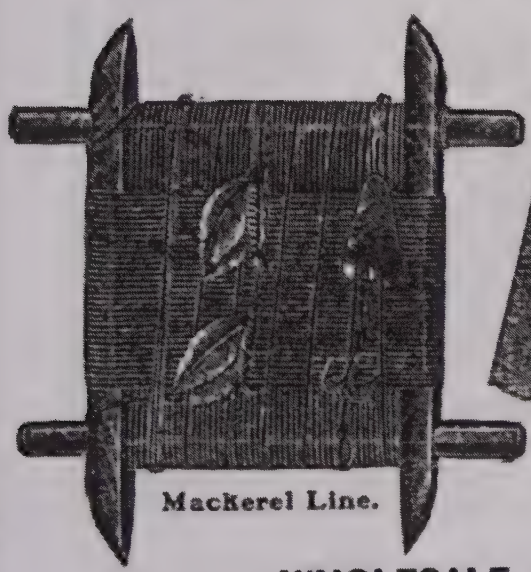

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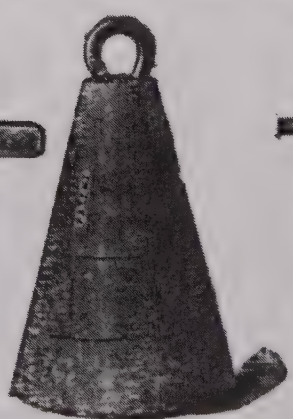

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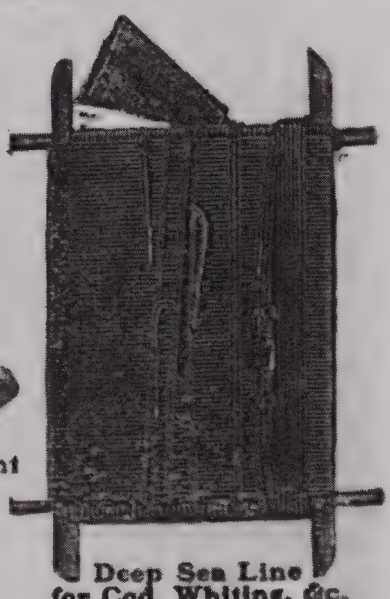

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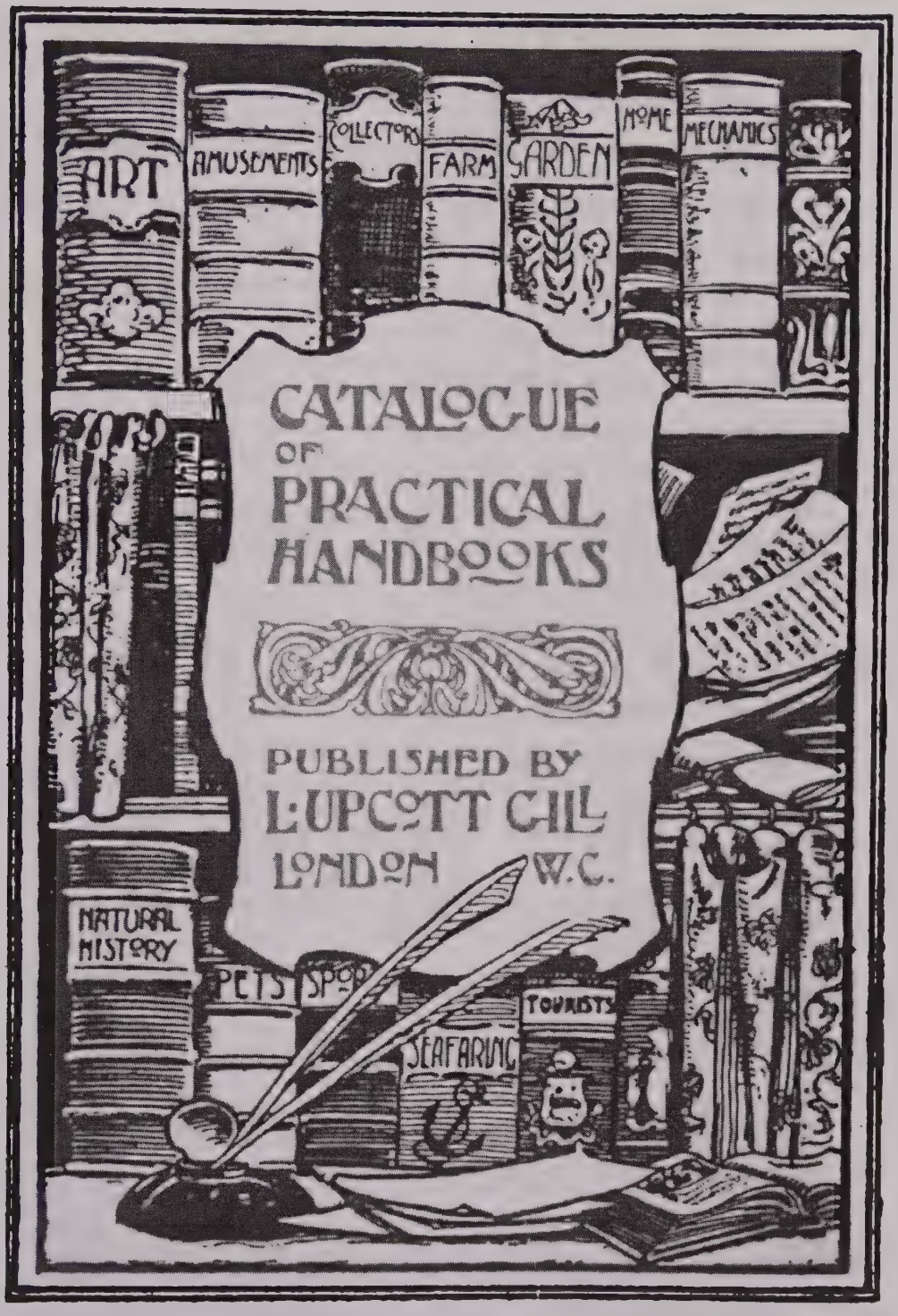

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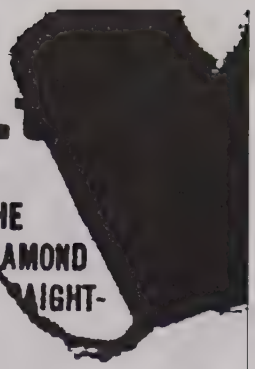

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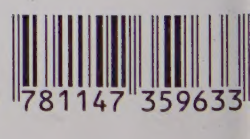

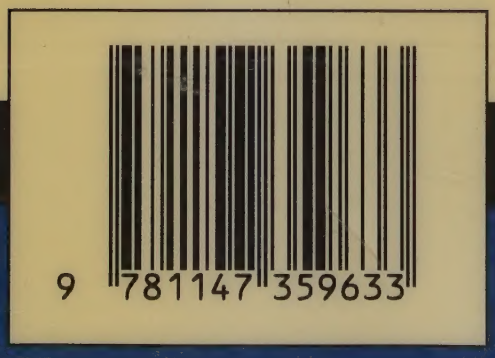
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